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NEWER ASPECTS OF ACIDOSIS *

McKIM MARRIOTT, M.D.
AND
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ST. LOUIS

In the consideration of acidosis, attention was first centered on the overproduction of abnormal acids in the body, especially the ketone acids, acetoacetic and beta-oxybutyric, and the term "acidosis" was used essentially as a synonym of "ketosis." Later, when it was found that the condition of acidosis could be brought about by causes other than ketosis, interest shifted to the hydrogen ion concentration of the body fluids, and such terms as "compensated" and "uncompensated" acidosis were introduced. It was believed that the chief deleterious effects of acidosis resulted from an increase of the hydrogen ion concentration of body fluids, and it was pointed out that the body possesses a remarkable mechanism for maintaining the constancy of its chemical reaction.

More recently the work of Van Slyke,[1] Gamble,[2] Peters [3] and their co-workers has caused us to look on "acidosis" from a still broader point of view. It has been shown, for instance, that the body tends very strongly to maintain its normal fixed base concentration, and in certain conditions the fixed base of the blood is maintained irrespective of the hydrogen ion concentration and the concentration of individual ions. Thus, we may see either acidosis or alkalosis occur in the presence of a normal electrolyte concentration and lead to little or no serious harm to the body. It seems probable that one reason why electrolyte tends to be maintained at a constant value is that it affects the osmotic pressure since normally more than 90 per cent of the osmotic pressure of the blood plasma is due to electrolyte. We [4] have obtained evidence which would tend to show that maintenance of the normal osmotic pressure of the body occurs even when electrolyte concentration is much reduced. In such instances, increase of osmotically compensatory nonprotein nitrogenous substances (chiefly urea) occurs. The preservation of a normal electrolyte concentration and of a normal osmotic pressure within the cells appears to be of even greater import than the maintenance of a constant hydrogen ion concentration.

The actual composition of the tissue cells cannot be determined during life, but it has been demonstrated, chiefly by the work of Van Slyke,[1] that one can predict changes in the red blood cells from changes in the plasma by application of the Donnan principle of ionic and osmotic equilibrium, existing when a membrane is not permeable to all the solutes present. It seems almost certain that a similar equilibrium exists between the lymph and the tissue cells, and it has already been shown [5] that this equilibrium exists between the plasma and the lymph. Therefore, by a study of the blood plasma one really obtains a picture of the changes which are occurring at the same time within the cells.

Our object in this paper is to present first the composition of the blood plasma in regard to its total electrolyte and total osmolar concentration and then to discuss the factors which influence such concentrations and which give rise secondarily either to "acidosis" or to "alkalosis."

The composition of normal blood plasma is shown in the first line of the accompanying table.

From this we see that of chief importance in regulating the hydrogen ion concentration of the plasma is $BHCO_3$ [6] (with H_2CO_3) and of chief importance in maintaining a normal total electrolyte concentration are, first, BCl and $BHCO_3$, and next, in the order of their importance, base protein, base phosphate, base lactate and base bound to undetermined acid. In addition, such nonelectrolytes as urea and dextrose contribute to some extent to the total osmotic pressure.

By actual freezing point determinations there is indicated a total osmolar concentration of solute in the plasma equivalent to 310 millimols. The theoretical osmolar concentration as calculated from the individual solute concentrations (excluding undetermined acid), as indicated in the table, is 290 millimols, or 93 per cent of the observed.

The most common and important conditions in which deviations from the normal composition of the plasma occur are: (1) severe anhydremia; (2) diabetes, and (3) nephritis.

ANHYDREMIA

When water is rapidly lost from the body, as in acute diarrhea, the first change noted in the plasma is a markedly increased protein concentration. This may be as high as 10 or 12 per cent, as contrasted with a normal of from 6 to 8 per cent. Most of the other individual solutes as, for instance, BCl, $BHPO_4$ and

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* Read before the Section on Diseases of Children at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

1. Van Slyke, D. D.; Wu, H., and McLean, F. C.: Studies of Gas and Electrolyte Equilibria in the Blood: V. Factors Controlling the Electrolyte and Water Distribution in the Blood, J. Biol. Chem. **56**: 804 (July) 1923.

2. Gamble, J. L.; Ross, G. S., and Tisdall, F. F.: The Metabolism of Fixed Base During Fasting, J. Biol. Chem. **57**: 633 (Oct.) 1923.

3. Bulger, H. A.; Peters, J. P.; Eisenman, A. J., and Lee, C.: Total Acid-Base Equilibrium in Health and Disease: VII. Factors Causing Acidosis in Chronic Nephritis, J. Clin. Investigation **2**: 213 (Feb.) 1926.

4. Hartmann, A. F., and Darrow, D. C.: Chemical Changes Occurring in the Body as a Result of Certain Diseases in Infants and Children: II. Acute Hemorrhagic Nephritis: Subacute Nephritis: Severe Chronic Nephritis, J. Clin. Investigation **6**: 127 (Aug.) 1928.

5. Hastings, A. B.; Sulvesen, H. A.; Sendroy, J., and Van Slyke, D. D.: Studies of Gas and Electrolyte Equilibria in the Blood: IX. Distribution of Electrolytes Between Transudates and Serum, J. General Physiol. **8**: 701 (March) 1927.

6. The terms $BHCO_3$, BCl, etc., indicate the combination of fixed bases with acid anions to form salts, for example, NaCl, $CaCl_2$ and $NaHCO_3$.

urea, suffer a similar concentration, as shown in the table and in chart 1. In contrast, however, base bicarbonate not only is not concentrated but is actually reduced. This reduction is due in part to replacement by base lactate produced as the result of decreased circulation and retained base phosphate, and in part to loss of bicarbonate in the diarrheal stools.[7] It also appears likely that bicarbonate is forced out in the urine as a compensatory measure in maintaining a normal osmotic pressure of the plasma.

When the fluid content of the body is restored by the administration of water alone or of water and dextrose, the tendency is for the total electrolyte concentration and osmotic pressure to fall to a normal or subnormal level, the bicarbonate especially remaining low until replenished by the food and by normal renal activity. In those cases in which, in the face of persistent diarrhea and oliguria, an attempt was made to restore lost water by the parenteral administration of is sufficient or more than sufficient to make up for electrolyte loss (chart 3).

NEPHRITIS

Changes in the plasma composition may occur in both acute and chronic nephritis. There is but little change in typical uncomplicated cases of acute hemorrhagic nephritis, unless acute uremia develops, when, as a result of increased muscular contraction and anoxemia, an increase in the lactic acid occurs, resulting in a decrease in the base bicarbonate. If marked vomiting occurs, there results a reduction of BCl and an increase in $BHCO_3$. The increase of the latter may be partially or entirely masked by an increase in such acid anions as phosphate, sulphate and lactate. There is often a marked diminution in total electrolyte. A normal osmotic pressure, however, is maintained because of an increase in urea concentration which is sufficient to compensate for electrolyte loss. When marked edema

The Composition of the Blood Serum in Acidosis

Type of Case	Sodium Chloride, Mg. per Cent	Carbon Dioxide Content, per Cent by Volume	p_H	Protein, per Cent	Inorganic Phosphorus, Mg. per Cent	Lactic Acid, Mg. per Cent	Total Base, Millimols	Residual Acid, Millimols	Dextrose, Mg. per Cent	Nonprotein Nitrogen, Mg. per Cent	Osmotic Pressure, Millimols	Comment
Normal	585	55.0	7.40	7.0	5.0	18.0	150	5.0	100	30	310	
Anhydremia due to diarrhea:												
1. Early phase	700	20.0	7.20	8.0	8.0	45.0	155	5.0	160	50	330	Water and $BHCO_3$ lost in stools; other solutes concentrated; lactic acid increased further because of poor circulation
2. Recovery	540	45.0	7.35	6.0	5.0	18.0	135	5.0	100	30	290	Diarrhea ceases; body water is restored but electrolyte and protein are now low
3. Salt solution administration without recovery	850	10.0	7.00	7.0	10.0	18.0	175	5.0	100	80	360	Diarrhea with water and $BHCO_3$ loss continues; NaCl is replenished but $BHCO_3$ is not; high NaCl tends further to lower $BHCO_3$
Diabetes mellitus	480	12.0	7.15	8.5	7.0	27.0	135	20.0	600	40	350	During period of polyuria, BCl and $BHCO_3$ are excreted; organic acid is increased, $BHCO_3$ and p_H are reduced; now solute is low in electrolyte and high in nonelectrolyte
Acute glomerular nephritis:												
1. Uremic convulsions	585	30.0	7.25	7.5	6.0	108.0	147	5.0	140	40	310	Convulsions and anoxemia have increased lactic acid
2. Marked vomiting	400	60.0	7.45	8.0	16.0	27.0	132	10.0	120	200	310	Other acid increase is masked by HCl loss, alkalosis may even result; electrolytic loss made up osmotically by urea
3. Marked edema	500	45.0	7.35	5.0	5.0	18.0	132	12.0	100	100	310	Protein and electrolyte low; urea and undetermined acid increased; osmotic pressure normal
Severe chronic nephritis	480	18.0	7.20	6.0	16.0	18.0	130	15.0	140	200	310	Phosphoric and "residual" acid (sulphuric) increased; fixed base lost because injured kidney cannot practice base economy; BCl also lost as result of polyuria; electrolyte loss made up osmotically by urea increase

water with an electrolyte such as physiologic solution of sodium chloride or Ringer's solution, we note frequently a persistent high BCl content and low base bicarbonate content, despite no great concentration of the plasma as indicated by plasma protein. In such instances, BCl has been retained in the body to a greater extent than water, while $BHCO_3$ has continued to be lost in the ways mentioned (chart 2).

DIABETES

In severe diabetic acidosis, we note that base bicarbonate is reduced, being replaced by salts of organic acids, such as diacetic, beta-oxybutyric and lactic. We also note, despite water loss from the plasma, as indicated by the increased protein value, that BCl has been substantially reduced and, indeed, we find that the total electrolyte (or the fixed base) has been appreciably diminished. We find, however, usually a normal or a high total osmotic pressure because increased dextrose complicates acute hemorrhagic nephritis, there is a tendency for electrolyte and water to pass from the plasma into the intercellular spaces and, as a result, osmotic pressure due to electrolyte may be much decreased. A normal total osmotic pressure, however, is maintained in some manner, urea increase being again an important factor (chart 5).

In severe chronic nephritis there are more or less constant changes in the blood which include a marked diminution in base bicarbonate and p_H and of BCl. Base phosphate and base sulphate may be considerably elevated, but the total electrolyte content of the plasma is always reduced and occasionally may be only two thirds of the normal. We do not find any decrease in total osmotic pressure, and again, as in the case of severe vomiting complicating acute hemorrhagic nephritis, this is due to the compensating effect of urea increase (chart 6).

THE PATHOGENESIS OF ACIDOSIS

From this brief description of the observations in the more common and more important types of acidosis,

7. Hartmann, A. F.: The Effects of Diarrhea, Vomiting, Dehydration and Oliguria on the Acid-Base Balance of the Plasma of Infants with Mastoiditis, Am. J. Dis. Child. 35: 557 (April) 1928.

we can recognize as contributing factors: (1) increase of normal acids such as lactic, phosphoric and sulphuric; (2) loss of fixed base, and (3) maintenance or failure of maintenance of normal osmotic pressure.

The explanation of the means by which such factors operate lies in the analysis of the effects of: (1) dehydration due to diarrhea, vomiting or polyuria; (2) abnormal metabolism giving rise to abnormal organic acids, and (3) failure of the kidney because of oliguria or actual renal injury to adjust by urinary secretion for such changes.

Water loss due to diarrhea would naturally be expected to increase the concentration of all solutes in the plasma except those which may be secreted into the gastro-intestinal tract and into the urine. In the dehydration accompanying severe diarrhea oliguria occurs, so that loss of solute by way of the urine may be neglected. However, there apparently occurs loss of base bicarbonate by way of the bowel because of its secretion from the plasma into the pancreatic and intestinal juices. We can therefore see how the early picture of anhydremia is brought about, water and base bicarbonate loss in the stool being the chief factors.

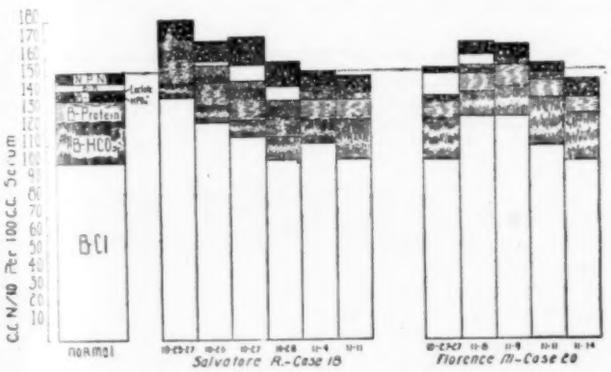

Chart 1.—Electrolyte and nonprotein nitrogen of blood serum in cases of mastoiditis with diarrhea, vomiting, dehydration and oliguria, as influenced by administration of dextrose solution and sodium bicarbonate.

If dehydration is caused entirely by vomiting, as for instance in pyloric or high intestinal obstruction, there occurs a loss of gastric juice which contains hydrochloric acid and a small amount of fixed base. Such dehydration would therefore give rise to a diminished base chloride content of the plasma with increase in base bicarbonate or, in other words, alkalosis, and would produce a picture such as has been described as occurring following marked vomiting in cases of acute nephritis.

If dehydration is brought about largely by polyuria, as in diabetes, the urine carries out not only dextrose and water but also BCl and $BHCO_3$. The loss of the latter substances is important in producing the picture seen in diabetic acidosis. Such loss of electrolyte is in accord with what we would expect to occur in response to a shrinking of cell volume due either to primary water loss, as occurs in intestinal intoxication, or to the loss of cell glycogen with its bound water, as occurs in starvation and diabetes. Gamble, Ross and Tisdall [2] have shown in a beautiful manner how excretion into the urine of fixed base and acid follows such a reduction in cell volume due to starvation. It seems fair to presume, therefore, that when urinary secretion is reestablished following dehydration, excretion of fixed acid and fixed base will occur in accordance with the principles set forth by Gamble. Later, when water alone is restored, there will be a deficiency in electrolyte.

In diabetes, incomplete oxidation of fat results in an accumulation of ketone acids, which are neutralized by the fixed bases. In the presence of increased muscular contraction and anoxemia, or anhydremia with attendant poor circulation, lactic acid, a normal acid, may accumulate to a significant degree and appropriate bases, just as do the ketone acids.

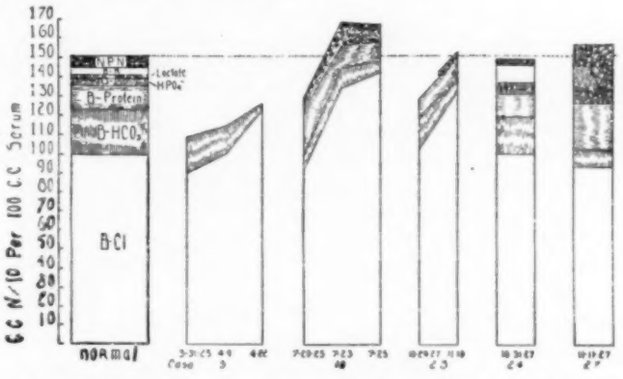

Chart 2.—Electrolyte and nonprotein nitrogen of blood serum in cases of mastoiditis with diarrhea, vomiting, dehydration and oliguria, as influenced by administration of salt solution.

In severe chronic nephritis, urinary secretion is faulty as a result of renal injury, and acids such as phosphoric and sulphuric are insufficiently removed. There also occurs a loss of more fixed base from the plasma than would be expected to occur normally. This loss of fixed base results primarily from a failure of the kidney to substitute ammonia for the fixed base of the plasma salts, and secondarily from failure of the kidney to maintain the normal maximum hydrogen ion concentration of the urine.

TREATMENT

Anhydremic Acidosis.—Since the chief factors operating to produce acidosis in cases of marked diarrhea and anhydremia are water loss and loss of base bicarbonate by the bowel, the correction of this type of

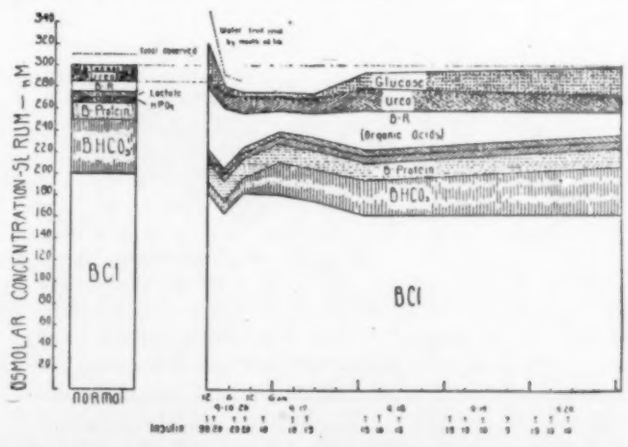

Chart 3.—The osmolar electrolyte and nonelectrolyte composition of the plasma in severe diabetic acidosis and changes taking place as a result of the administration of water, insulin and carbohydrate.

acidosis should be logically by the administration of water and sodium bicarbonate. In the presence of vomiting or diarrhea, oral administration of either is relatively ineffective. Rectal administration of water is not very satisfactory in young infants and is impossible when there is diarrhea. Water must therefore be

administered parenterally. Until very recently physiologic solution of sodium chloride or Ringer's solution was largely used for this purpose. Their effect, however, is frequently deleterious in that their administration is followed by a retention of the salt, especially in those cases in which, because of continued diarrhea,

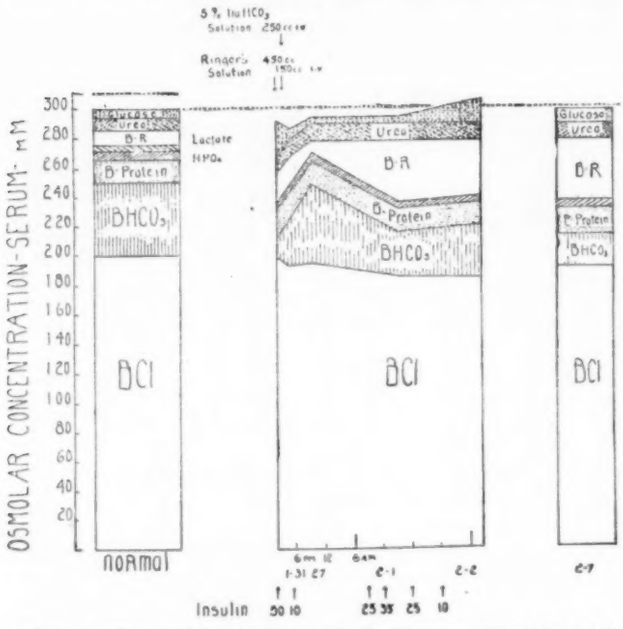

Chart 4.—The osmolar electrolyte and nonelectrolyte composition of the plasma in severe diabetic acidosis and changes taking place as a result of the administration of water, insulin, carbohydrate, salt solution and alkali.

the resultant oliguria prevents adequate urinary excretion of chlorides. This results in a partial substitution of BCl for $BHCO_3$ in the plasma, as would be expected, since in normal infants and in those whose plasma contains an excess of bicarbonate [8] (alkalosis), salt administration is followed by the secretion of bicarbonate in

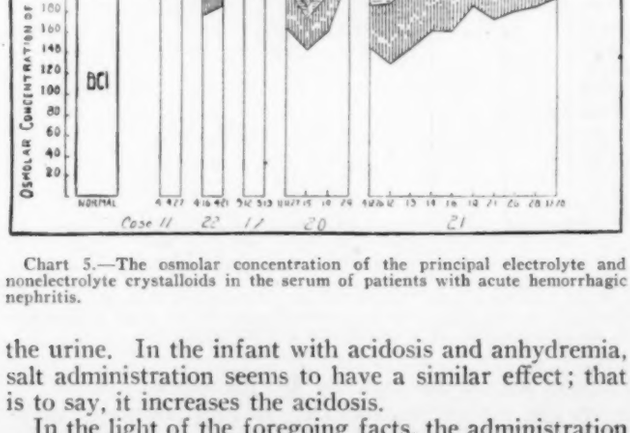

Chart 5.—The osmolar concentration of the principal electrolyte and nonelectrolyte crystalloids in the serum of patients with acute hemorrhagic nephritis.

the urine. In the infant with acidosis and anhydremia, salt administration seems to have a similar effect; that is to say, it increases the acidosis.

In the light of the foregoing facts, the administration of dextrose solution rather than saline solution is indicated. This should be given in isotonic solution (5 per cent) either intravenously or intraperitoneally, and its administration should be continued as long as anhydremia persists. When the plasma bicarbonate is greatly reduced, sodium bicarbonate must also be given in amounts sufficient to prevent the carbon dioxide content of the plasma from falling below 30 per cent by volume. Because of the difficulty that is occasionally encountered in administering solutions intravenously in young infants, it is of advantage to administer water, dextrose and alkali by the intraperitoneal route. This can be done provided the reaction of the solution used is close to that of the blood (p_H 7.4). A sodium bicarbonate solution may readily be brought to this reaction by bubbling carbon dioxide through it. A drop of phenolsulphonphthalein serves to indicate when the desired reaction is reached. The oxidative removal of such lactic acid as may have accumulated is favored by the restoration of a normal blood volume and circulation through fluid administration and by oxygen inhalation.

Diabetic Acidosis.—The treatment of diabetic acidosis with insulin and water is, in many cases, adequate. Oxidation of the ketone acids results in a release of base bound by these acids to restore partially the bicar-

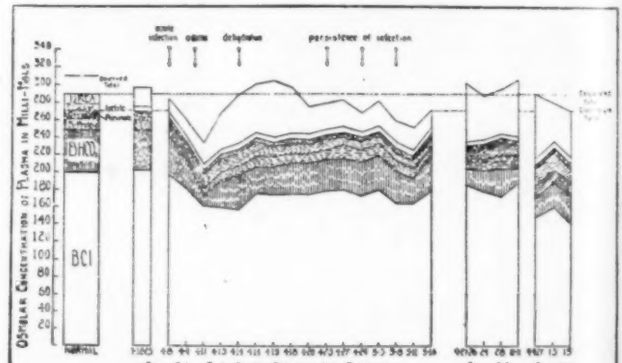
OSMOLAR CONCENTRATION OF PLASMA IN MILLI-MOLS
BCl
Case 24 Sub-Acute Glomerular Nephritis Becoming Chronic
Case 28 Case 30 Severe Chronic Nephritis

Chart 6.—The osmolar concentration of the principal electrolyte and nonelectrolyte crystalloids in the serum of patients with subacute and severe chronic nephritis.

bonate. It should be noted from chart 3, however, that such restoration of bicarbonate may be very slow and that hypoglycemia may occur before there is a significant increase in the base bicarbonate of the plasma. The administration of dextrose along with insulin prevents hypoglycemia but can increase the rate of acetone body oxidation only up to a certain point. When the plasma bicarbonate is greatly reduced and is but slowly replenished, administration of alkali is effective in relieving the acute symptoms of acidosis and its administration is indicated (chart 4).

Acidosis of Nephritis.—The lactic acid acidosis of acute nephritis can be relieved readily by any method that relieves convulsions and anoxemia. The administration of sedatives and of oxygen is therefore indicated. In the persistent acidosis seen in severe chronic nephritis little can be done in the way of reducing accumulated acid. Oral administration of such salts as calcium acetate has some effect in causing excretion of phosphate by way of the bowel. The other and more serious factor of nephritic acidosis, the diminution of fixed base, can be met by the administration of alkali in addition to that present in the ordinary diet. In mild cases, a diet can be constructed that has a more

8. Hartmann, A. F., and Smyth, F. S.: Chemical Changes Occurring in the Body as the Result of Vomiting, Am. J. Dis. Child. 32: 1 (July) 1926.

alkaline ash than the usual one. In severe cases, in the absence of vomiting and diarrhea, additional alkali may be given by mouth or intravenously. A mild or even moderately severe chronic acidosis in the presence of nephritis may persist for years and apparently not cause any harm of itself. The acidosis may even prevent the occurrence of tetany and in this way may be beneficial.

COMMENT

It should be emphasized that such changes as we have described under the heading of acidosis are merely symptoms of some underlying condition that has disturbed the equilibrium existing within the body fluids and cells. This disturbed equilibrium may be the result of a variety of causes which must in each instance be sought out and, if possible, removed. When this can be done, recovery is likely to occur. Occasionally restoration of a normal equilibrium may be hastened by the administration of those substances of which the body has been depleted.

ABSTRACT OF DISCUSSION

DR. FREDERIC W. SCHLUTZ, Minneapolis: The great distinction that exists between modern medicine and medicine of the past lies in the fact that we are learning to interpret the phenomena of disease and explain them in the light of physiologic, biochemical or physical experiment. It is the practical application of experiments and results found in the laboratory to the problems of disease, combined with the vastly improved diagnostic procedures of today, that has led to the great advances in the exact knowledge of disease and its more rational and successful treatment. We all know how even in the most elementary laboratory experiment the slightest alteration in conditions will entirely alter both the course and the result of the experiment. It must be so in the human organism and doubtless actually is so. Such phenomena as hydration and concentration or the relative status of acid-base equilibriums must be of the greatest moment and importance. The correction of disturbed equilibriums and the maintenance of a favorable balance of antibodies and immune reactions doubtless constitute fundamentally the two chief problems with which the human organism is concerned. It is the enormous complexity of the human organism and its capacity for infinitesmal combinations and reactions, physical, chemical or physiologic, which multiply the difficulties of the investigator and seriously affect his results and theoretical deductions, making it comparatively easy sometimes to prove him wrong. It is probably the sole reason why the experiments in the test tube and in the living organism do not always turn out the same way. It is always a great satisfaction to have a good reason for doing things. This is certainly true in the sickroom. The authors' discussion indicates the pathway that we must follow. They have taken buttermilk out of the kitchen, Karo corn syrup off the shelf. We may think that they have just hit on these simple homely things as an accidental aid in infant feeding. Do not be deceived. They were thinking all the time in terms of acid-base equilibrium, hydrogen ion concentration and what not.

DR. MCKIM MARRIOTT, St. Louis: I want to emphasize that acidosis and alkalosis as they occur in the body are merely symptoms of a general disturbance of equilibrium. Acidosis itself usually need not be worried about or treated. For example, in chronic nephritis a certain degree of acidosis is probably desirable. If that acidosis did not exist in chronic nephritis, the patient would be in danger of developing tetany with convulsions. In certain other conditions, as, for example, mountain sickness, acidosis is a normal or desirable condition and does not need treatment. It would not be advantagous to treat it but distinctly a disadvantage. I think we have grown away from merely looking at the acidity of the urine or the p_H of the blood or the bicarbonate of the blood and have come to the really underlying factor, which is the maintenance of normal equilibrium. We have been looking too far into what caused the disturbance and have treated that, instead of merely treating the symptoms as they appear on the surface.

FALLACIES CONCERNING CHRONIC APPENDICITIS *

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A clinical diagnosis of chronic appendicitis implies that the patient has a localized disease confined to the appendix, that appendectomy is indicated, and that the operation will provide a cure. That this is not the case is apparent to the most casual investigator of the results of appendectomy for chronic appendicitis. Short follow-up records on the patients under discussion mean nothing, as they are apt to be relieved by a two weeks' rest in the hospital with or without operation.

We believe that so-called chronic appendicitis is not a disease limited to the appendix. It is invariably a more generalized condition which involves a consideration of the habitus of the individual, the entire gastro-intestinal tract, especially the colon, and the sensory nerves in the abdominal wall. We believe it is most frequently found in a certain constitutionally inferior type of individual who has a predisposition to much functional disease. The majority of patients who have undergone an unavailing operation for chronic appendicitis fall clearly into the asthenic, visceroptotic group characterized by nervous instability and persistent functional disgestive disorders.

So-called appendicular dyspepsia is anything but a clearly defined clinical picture and does not offer an opportunity for diagnosis. We would particularly emphasize the fact that chronic digestive trouble for which there is no ascertainable cause is not cured by appendectomy.

We are unable to find any symptom complex which justifies a clinical diagnosis of chronic appendicitis which will be cured by appendectomy. Most writers insist on a history of recurring acute attacks antedated by good health before making a diagnosis. Such a history does not necessarily justify the diagnosis. For instance, acute attacks of pain and tenderness in the lower right abdomen accompanied with fever, nausea and vomiting can frequently be demonstrated to be acute toxic intercostal neuralgia of the anterior abdominal wall.[1] It is only by careful differentiation of visceral tenderness from the parietal tenderness that the diagnosis of appendicitis can be made.

Chronic pain and tenderness in the lower right abdomen are still mentioned as indicative of chronic appendicitis, although numerous writers have pointed out that such observations are valueless. All the symptoms ascribed to chronic appendicitis can easily be found in hundreds of patients months or years after the appendix has been removed.

Laboratory evidence of chronic changes in the appendix does not mean that the patient's symptoms will be cured by the appendectomy. Microscopic and gross changes of a chronic character in the appendix are so habitually proportionate to the age of the patient that they should be looked on as a normal evolution rather

* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Carnett, J. B.: Am. J. M. Sc. **174**: 833 (Dec.) 1927.

than a disease process calling for operation. The clinicians who have replaced the laboratory test by the clinical test of whether or not the patient's symptoms have been permanently benefited by the operation are abandoning appendectomy for chronic appendicitis.

Notwithstanding the constant stream of patients with symptoms unaltered by appendectomy that pass through x-ray rooms, the majority of roentgenologists continue the unjustifiable practice of making frequent diagnoses of chronic appendicitis for which they advise operation. A study of results one year after appendectomy would soon convince them of their errors.

Roentgenologists are accustomed to offer such direct evidence of appendicitis as filling and slow emptying, not filling at all, or filling in part or by segments, tenderness over the organ as determined by the fluoroscope, fixation, kinking, and so on. Indirect evidence is supposed to be afforded by pylorospasm and ileac stasis. The very fact that there is such a lack of unanimity concerning the x-ray results minimizes the value of all of them. X-ray appendicitis is almost invariably laboratory appendicitis, but neither of them is apt to be clinical appendicitis.

In a recent paper on chronic appendicitis, Bettmann [2] has pointed out many of the fallacies of x-ray diagnosis. To his list we will add another common error and that is a statement by the roentgenologist that the appendix must be diseased because he finds tenderness over it in every one of the positions into which he displaces it. It is obvious that any other diffuse tenderness, as for instance parietal neuralgia in the region of the appendix, will give the same signs. To be of any diagnostic value, the tenderness must also be absent in each of the areas from which the visualized appendix is displaced. When this precaution is observed, tenderness is not limited to the appendix in chronic cases.

Great value attaches to the x-ray examination of other parts of the gastro-intestinal tract, however, in that it may disclose some unsuspected organic disease such as ulcer, gallbladder disease, urinary calculus, carcinoma or tuberculosis of the bowel or colitis.

As one of us [3] has endeavored to demonstrate in an earlier paper, the usual location of chronic pain and tenderness in the lower right quadrant is in the anterior wall of the abdomen and not in the appendix. The parietal location of hyperesthesia is demonstrated by finding tenderness (1) on pinching abdominal skin and fat, (2) on finger-end poking of the abdominal wall while the patient holds his abdominal muscles tensed either by forcible contraction of the diaphragm or by his raising and holding his heels above the bed with knees extended, (3) on making pressure over intercostal nerve trunks, and (4) on pinching or exerting finger-end pressure over Poupart's ligament and over the upper posterior buttock region on the right side. To be of real value, these tests must be carried out with far more force than the average clinician is apt to apply. The results can be checked by applying the same tests with the same or greater force to corresponding areas on the left side, provided the tenderness is not bilateral. The parietal pain and tenderness are due to various forms of irritative lesions of the right tenth, eleventh and twelfth intercostal and first lumbar nerves and can be cured by treatment of the underlying cause, usually a scoliosis, spinal arthritis or excessive lumbar lordosis and toxemias of various origin.

Several writers describe hyperesthesia of the abdominal skin as a sign of appendicitis in accordance with the visceroparietal reflex of Head, Mackenzie and others. We are absolutely opposed to the theory of the visceroparietal reflex and believe that any effort to apply it leads to needless appendectomies and other futile intra-abdominal operations. On careful examination, skin hyperesthesia is frequently found to be a part of the more extensive picture of neuralgia of the lower intercostal and first lumbar nerves. Its cause is external to the abdomen and does not call for an intra-abdominal operation.

In parietal neuralgia of the right lower portion of the abdomen, cutaneous hyperesthesia, as shown by pinching or pin pricking and palpation tenderness obtained both when the muscles are relaxed and when they are held tensed, coexist in a more or less diffuse area in the region of McBurney's point. Localized or excessive tenderness at McBurney's point is often due to one of the "tender points" of parietal neuralgia.

Unfortunately, tenderness at McBurney's point is too frequently regarded as synonymous with a diagnosis of appendicitis. Recent acute tenderness is due as often to acute toxic parietal neuralgia as it is to acute and subacute appendicitis. Persistent prolonged tenderness is rarely due to chronic appendicitis and it commonly persists for months or years after operation in patients subjected to appendectomy. Chronic tenderness at McBurney's point is located usually in the anterior parietes because of neuralgia and less often in the posterior parietes because of chronic strain of the lumbar spine and sacro-iliac joints.[4] In the latter condition, tenderness is found (1) in the iliac fossa portion of the right sacro-iliac joint by deep palpation at McBurney's point and (2) by inadvertently bumping the ends of the palpating fingers against the bodies of the lumbar vertebrae anywhere in the vicinity of McBurney's point. That these two areas of tenderness are not due to the appendix is shown by eliciting the same tenderness on palpation of corresponding areas on the left side.

The many physicians and surgeons who take the attitude that appendectomy for chronic appendicitis is so harmless a procedure that the appendix should be removed to clear up any doubt as to the cause of persistent symptoms should carefully consider Bettmann's [2] summary of the figures reported by Warnshuis "on the mortality attending operations for chronic appendicitis in thirty-five representative hospitals in eight North Central States. The mortality in 5,664 cases was 1.68 per cent. Lakeside Hospital, Cleveland, had eight deaths in 282 operations. Ford Hospital, Detroit, fifteen deaths in 389 operations, a mortality respectively of 2.8 per cent and 3.8 per cent. Several hospitals reported no mortality." Bettmann further states: "It is bad enough that nearly 2 per cent die from the operation; that countless errors in diagnosis are made; that 40 per cent of the operated patients remain unrelieved. In addition, a fairly large proportion of the patients are made worse by the operation and some are invalided for life." Of 300 patients unsuccessfully operated on for chronic appendicitis, he found thirty-five, or 11.6 per cent, who were made definitely worse by the operation.

The economic loss incident to needless appendectomies must be enormous. In our opinion, appendectomy for chronic appendicitis should be restricted to

2. Bettmann, H. W.: Ann. Clin. Med., to be published.
3. Carnett, J. B.: Ann. J.M. Sc. **174**: 579 (Nov.) 1927.
4. Carnett, J. B.: Ann. Surg., April, 1927.

the relatively rare cases in which x-ray examination by a competent roentgenologist reveals evidence of adhesions binding together structures in the appendix region and causing more or less intestinal obstruction. Under these exceptional circumstances the operation is undertaken primarily because of adhesions and the appendectomy is merely incidental.

Many writers object to routine appendectomies in patients with symptoms suggestive of chronic appendicitis and limit operation to those who give a history of previous definite acute attacks; some emphasize vomiting as a special requisite of earlier attacks before agreeing to operation. We have found in more than 50 per cent of the patients referred to us with a diagnosis of acute appendicitis that the real trouble is an acute toxic parietal neuralgia and the appendix itself is free from acute disease. Vomiting is a frequent symptom in these cases of toxic neuralgia. It is therefore evident that a history of previous acute attacks with or without vomiting is apt to prove a very misleading indication for appendectomy. The more numerous the attacks or the more nearly constant the symptoms, the less apt is the case to be appendicitis and the more likely is it to be parietal neuralgia.

Many surgeons as a routine employ the gridiron muscle splitting operation for cases of acute appendicitis but in the technically easier operation of appendectomy for chronic appendicitis habitually resort to a lengthy right rectus incision to permit of wide exploration of the abdominal cavity for other lesions. The fact of their resorting to the rectus incision indicates their own lack of faith in chronic appendicitis as a cause of abdominal symptoms. Extensive exploration, with its increased mortality, so exceptionally reveals a gastric or duodenal ulcer, gallstone or other unsuspected lesion that the extensive incision, with its definite risk of hernia, is not warranted as a routine procedure. These exploratory laparotomies are commonly undertaken for the abdominal pain and tenderness, atypical of any single intra-abdominal lesion, which cause the patient to seek treatment. By proper examinations it is possible to recognize the parietal location of atypical pain and tenderness, and futile operative explorations can be avoided.

In two papers on the ultimate results of appendectomy for chronic appendicitis, Gibson [5] reports 102 "unsatisfactory results" in which pain in some form was the chief postoperative complaint. In seventy-three of these 102 cases, a more or less extensive exploration failed to cure the preoperative pain. His figures indicate that exploration plus appendectomy frequently fail in their mission of curing symptoms ascribed to chronic appendicitis. In a paper on chronic appendicitis, Payr [6] states that a so-called extended laparotomy is in general not commendable after an erroneous diagnosis has been made, since a satisfactory result cannot be guaranteed by this procedure.

In the most recently published book on appendicitis, Royster [7] very properly and definitely states that chronic pain and tenderness must not be regarded as symptoms of chronic appendicitis. His diagnosis of chronic appendicitis based on symptoms of indigestion is far from convincing. He uses the muscle splitting operation for acute cases and the exploratory right rectus incision for chronic cases. He states that the latter incision is provocative of more postoperative pain. This finding probably antedates his giving up appendectomies for chronic pain and tenderness as prolonged incisional pain is practically always due to parietal neuralgia, evidences of which may also be found at a distance from the scar.

Adhesions of the ileocolic region as shown by x-ray or operation are not always due to a preceding appendicitis, as commonly believed. It is probable that they often result from perversions of the fusion which normally occurs between the outer leaflet of the primitive mesocolon and the posterior parietal peritoneum. This same fusion is responsible for burial of the appendix in the retrocecal or retrocolic tissues. There does not seem to be a good reason for the prevalent belief that chronic disease of the appendix in the buried retrocolic position causes toxemia of greater degree than when it is located elsewhere.

Many of the theories relative to chronic appendicitis causing distant lesions originated before it was realized how commonly the appendix shows gross or microscopic evidence of chronic changes due to normal evolution of the organ. The fairly constant observations of alterations in every appendix removed coincident with operations on stomach, duodenum or gallbladder are not to be regarded as cause and effect. The same changes are noted in appendixes removed incidental to operations on pus tubes or right inguinal hernias. Aberrant or retrograde lymph flow from a chronically diseased appendix might therefore just as logically be ascribed as the cause of pus tubes or right inguinal hernia as of gastric ulcer or of biliary disease. There is no doubt that toxins and bacteria carried in the portal circulation may cause pathologic conditions in the liver and gallbladder, but there is no good reason to believe that these noxious agents originate in a comparatively small sclerosed appendix rather than elsewhere in the large sewerage system of the intestinal tract.

Parietal neuralgia is a common cause of symptoms resembling gallbladder disease [8] or duodenal ulcer. It is not an uncommon experience for a surgeon to find those organs normal at operation and then place the blame on an appendix which shows only the changes usually encountered in the appendixes of adults. The disappearance of symptoms of upper abdominal disease following appendectomy is so rare that its occurrence may well be regarded as a coincidence rather than the result of operation.

Lichty has observed that the poor results from surgery for chronic appendicitis are due not to operative failures but to mistaken diagnoses. Appendectomy almost never relieves any form of chronic digestive disorder. When it is once done for such a purpose (as either a first or last resort) it often initiates a series of operations tragic to behold.

The treatment of so-called chronic appendicitis begins with a complete survey of the patient. We consider the disease as a constitutional rather than local condition. The fundamental part of the treatment is one of reconstruction.

As these patients are usually underweight and visceroptotic, they should be placed on a diet designed to increase weight and to overcome intestinal stasis. The usual spasticity of the colon in these cases calls for a bland diet; hence foods containing an excess of cellulose, such as raw fruits, green vegetables and bran, are forbidden. Generous amounts of milk, cream, butter, cereals, and such starch foods as rice, potatoes and macaroni are desirable, and custards, junket, gelatin and

5. Gibson, C. L.: Am. J. M. Sc. **159**: 654 (May) 1920; **168**: 807 (Dec.) 1924.
6. Payr, E.: Deutsche Ztschr. f. Chir. **200**: 307, 1927.
7. Royster, H. A.: Appendicitis, New York, D. Appleton & Co., 1927.
8. Carnett, J. B.: Ann. Surg. **86**: 747 (Nov.) 1927.

small amounts of chicken, lean meats, fish and eggs. A morning dose of some mild aperient, such as sodium phosphate, is indicated to correct stasis. Hot fomentations over the abdomen for one hour two or three times a day aid in relieving spasm and local soreness. Rest periods before and after meals for from one-half to one hour are distinctly beneficial, or, if the case is severe, complete rest in bed for several weeks may be required. The application of a well fitted abdominal pad or corset is advisable if there is much ptosis. This may form part of the orthopedic corset or brace required for excess lumbar lordosis or spinal arthritis. These should be worn until there is a substantial increase in weight. Exercises designed to strengthen the abdominal muscles and to correct the faulty posture, especially scoliosis and lordosis, are of particular importance. Toxic foci in teeth, tonsils, colon and elsewhere should receive appropriate attention. The necessity of fresh air, sunshine and a moderate amount of exercise need scarcely be mentioned. Drugs other than laxatives have a limited value and the most important are those of a sedative nature. Sleep is imperative and may be secured by bromides or barbituric acid hypnotics. Such general tonics as strychnine, iron, cod liver oil and arsenic are helpful. To aid elimination, agar-agar, psyllium seeds or liquid petrolatum may be used with benefit for an indefinite time. The use of alkalis such as sodium bicarbonate, calcium carbonate and magnesium oxide may be given to relieve symptoms of hyperacidity, but in large amounts they may cause distinctly disagreeable symptoms of a toxic nature.

It is our well considered opinion that patients as a whole would be better off by complete abandonment of the operation of appendectomy for so-called chronic appendicitis.

To recapitulate, we believe the treatment of cases heretofore regarded as chronic appendicitis should be nonoperative and should consist of orthopedic supervision of strains and lesions of the spinal column, elimination of toxic foci, and medical correction of digestive disturbances.

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ABSTRACT OF DISCUSSION

DR. JOSEPH SAILER, Philadelphia: If we accept the basis of this paper, which is that all the tenderness occurring in the right lower quadrant of the abdomen is not due to a diseased appendix, no one can controvert it. If we accept a corollary, which the authors do not definitely state but which they very distinctly imply, that there is no such entity as chronic appendicitis, there is a possibility of a difference of opinion. Unquestionably, if there is no such entity as chronic appendicitis, operation for it should be abandoned. If, on the other hand, there are appendixes which, as a result of strictures or kinks, may from time to time give rise to severe pain or mild pain, or to mild infection, they should be removed, and their removal will result in benefit to the patient. How much evidence is there against chronic appendicitis? The evidence against appendicitis in the presence of definite tenderness in the right lower quadrant of the abdomen is very much what the authors have mentioned; namely, that the tenderness is more diffuse, very often bilateral, and that it may be found in the back and in the flanks as well as in the side. Against the theory that many of these cases are due to an intracostal neuralgia or neuritis is the fact that the tenderness is very rarely along the course of the nerve and in the intracostal spaces. I have looked for that frequently and have failed to find it. There are some who insist that one of the significant signs is what is called the release tenderness. If firm pressure is made over the abdomen and continued for two or three seconds, and then suddenly released, sometimes the patient complains of a severe exacerbation of the pain. I have been able to demonstrate this. When it is present, it is a very valuable additional sign in the diagnosis. The authors laid a great deal of stress on the bad results of the majority of operations for so-called chronic appendicitis. These are due, they say, to mistaken diagnosis. They urge a complete examination. One could almost infer, from hearing papers in medical societies, that the great majority of physicians examine their patients superficially. I do not believe that that is true. It is, of course, important to examine the back as well as the front. It is important to find out whether or not the patient has leukocytosis and fever. In making a diagnosis, putting pressure on the abdominal wall while stretching is a rather useful aid. The easy way is to have the patient lie on his back and lift the heels, keeping the knees straight. I do not agree with all the authors' conclusions, but I do agree with the general proposition that we must not operate recklessly. At the present time, possibly the internist is more reckless than the surgeon.

DR. SEALE HARRIS, Birmingham, Ala.: There are unquestionably too many operations for chronic appendicitis, although they are fewer now than a number of years ago. Ten years ago we made a study of our patients with ulcer, and about 40 per cent of them had had an operation for chronic appendicitis before they came to us because of the ulcers. I disagree with the authors on one point and that is the long incision, with a careful exploration of the entire abdomen, in operating in these clean cases of suspected chronic appendicitis. I do not recall a hernia that followed the long right rectus incision in a clean case; and the incidence of chronic appendicitis with ulcers of the stomach and duodenum, and with gallbladder infection is frequent. Lichty called attention to that a number of years ago, and we found that the triad was present in a number of cases, i. e., gallstones, ulcer and chronic appendicitis. Unquestionably there are some cases of real chronic appendicitis, in which the x-rays show definite adhesions around the cecum. The thing that we have gotten away from is that there is a distinct entity of perityphlitis, and a great many patients who have had the operation for appendicitis still have the tenderness over the lower right quadrant. McCarrison pointed out in his examination of monkeys that the first thing that was found was intestinal stasis, and later the monkeys developed an actual colitis. I think that chronic colitis involving the cecum accounts for much of the pain in the lower right quadrant which leads to the mistaken diagnosis of chronic appendicitis.

DR. JAMES T. CASE, Battle Creek, Mich.: I once made a tabulation from the histories of a large series of patients entering our institution during a period of three months. I found that 25 per cent had had an appendectomy. Except for those who had had an appendectomy for acute suppurative appendicitis, or following a definite history of definite attacks, there was almost invariably a recurrence or persistence of the same old complaints for which the operation had been done. My colleague, Dr. Eggleston, found that 22 per cent of his patients with colitis had had an appendectomy, apparently without relief of symptoms. So, in principle, I agree that the operation of appendectomy for chronic appendicitis is considerably overdone, but I am sure I have seen a number of instances in which the patients' digestive disturbances have been relieved by an appendectomy, without any history of an acute attack. As to the value of the roentgen examination of the chronically diseased appendix, I may say that with the appendix, as with the gallbladder, it is probable that the worst cases do not permit entry of the ingested opaque medium into the organ, with resultant lack of shadow. Absence of the appendix shadow, after careful palpation and manipulation under the screen, including careful study in the oblique position, on several occasions after the administration of the opaque material (fifth, eighth and twenty-fourth or forty-eighth hour) therefore has a definite significance. Again, as with the gallbladder, when the appendix does become visualized through filling with opaque material, information becomes available as to the facility of filling and emptying; the presence of nonopaque, and sometimes of opaque concretions, and of foreign bodies, such as pins, beads and shot; the fact of adhesions producing kinks

and delays in emptying, as well as fixation of neighboring intestinal loops, and the presence of malpositions of the appendix. Probably most valuable in studying the chronic or subacutely pathologic appendix is the ability to palpate the abdomen with the gloved hand under fluoroscopic guidance and to note the relation of points of pain on pressure to the cecal shadow and to the appendical shadow when it shows. By overlooking a menacing chronic pathologic appendix, and refusing to admit the need of its removal in certain selected cases, one may permit a patient to go on to a ruptured acute suppurative appendicitis, coming on without the typical warning.

DR. C. B. WRIGHT, Minneapolis: I agree with almost everything that has been said. We know that there have been too many operations for chronic appendicitis, and we know, also, that there are still too many; but surgeons tell me that they are seeing more cases of perforated appendix today than they did ten years ago. Is this because we medical men are waiting too long to prove that it is not the appendix which is at fault?

DR. A. F. R. ANDRESEN, Brooklyn: As I look at it, in appendicitis we are dealing with two very distinct problems. There have been too many operations, and I agree entirely with the speakers that chronic appendicitis is only a part of a chronic gastro-intestinal infection and does not require operation, except for complications which cause persistent symptoms. On the other hand, in acute appendicitis we are dealing with a very serious problem. More and more patients are coming into the hospitals with ruptured appendixes which have not been recognized, having been treated medically for long periods of time, sometimes ten days or two weeks, and I think we are treading on thin ice when we speak of acute toxic neuralgias as causing symptoms resembling acute appendicitis and saying that these patients should not be operated on. I think it is safer to operate on an occasional patient with acute toxic neuralgia than to let a real case of appendicitis go on to rupture.

DR. W. B. RUSS, San Antonio, Texas: Today we have had the appendix presented in a new light as being the only organ in the body that is subject to acute inflammation but not subject to chronic inflammation. This is a novel view. However, what the authors have said concerning the fallacy of attributing all right lower quadrant pain to chronic appendicitis is well said. They are right too in saying that in many cases it is impossible to prove a chronic appendicitis even after operation. Overambitious and overwilling surgeons should give heed to these statements.

DR. RUSSELL S. BOLES, Philadelphia. We did not particularly emphasize the need for a complete general examination of the patient. I believe that most physicians are careful examiners and do justice to their patients. But the point we brought out in that connection was that we are anxious that particular examination be made to differentiate parietal tenderness from visceral tenderness, and that is not usually done. Dr. Harris spoke about the long incision in these cases, and we still stand on our opinion there. The long incision means that one is doing exploratory operations, and exploratory operations usually are futile, as they do not particularly reveal anything that might be corrected to relieve the patient. Incidentally, the long incision means a good deal more postoperative pain, and that is the thing from which these patients usually suffer. Dr. Case tells us that he recognizes chronic appendicitis clinically, and nearly all the speakers have mentioned the same point; but he, and they, did not mention the thing that Dr. Carnett and I want to know: How do you make the diagnosis? On what do you base the opinion that there is chronic appendicitis? We have not been able to make the diagnosis, and that particularly applies to the roentgen-ray examination of the appendix. Dr. Case said that the appendix which does not visualize usually means, as in the case of the gallbladder, that we are dealing with chronic disease. We take issue with that because we believe that just as many of those appendixes are found normal at operation as disease, even though they are not visualized. Dr. Wright and Dr. Andresen mentioned the fact that acute and subacute appendicitis are more frequent now than sometime ago. Dr. Carnett and I appreciate that there is a great deal of danger in considering such a thing as acute toxic parietal neuralgia as disguising an acute appendicitis; at the same time, we cannot escape the fact that a great many patients with acute appendicitis are operated on without acute inflammation of the appendix being found. It is in these particular cases that we would invite you to look carefully for the acute parietal neuralgia which is so commonly present. If those of you who feel that we are wrong about this matter of chronic appendicitis can recognize such a disease, we should like to know on what you base your diagnosis.

THE GENERAL PRACTITIONER IN THE MEDICAL SCHEME*

M. L. HARRIS, M.D.
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The practice of medicine is as old as the dawn of human intelligence. It is mentioned in the annals and traditions of the Chinese as far back as the twenty-seventh century before Christ but must have antedated that by untold centuries. The germ of the practice of medicine may be conceived as having been planted at a time when the recognition of pain and suffering in others first kindled in the human mind the emotions of pity and of sympathy. The little germ, once planted, grew slowly and at first produced only thistles and thorns; it was ages before the thistles gave way to little buds, and these to flowers and finally to fruit. The age of thistles and thorns may be designated as the period in which all disease and suffering were thought to be due to evil spirits affecting the individual, and that these spirits, or demons, had to be exorcised by all sorts of incantations; the age of the little buds as the period when the evil spirits as the cause of disease had yielded to humors in the body and a disease was looked on as an entity; the age of flowers as the period in which disease was no longer looked on as an entity but as a pathologic condition of the body, the result of natural causes; and the age of fruit as the present time, when the great advances that have been made in the fundamental and allied sciences have placed the practice of medicine on a real scientific basis.

At first probably any one might attempt to relieve suffering; but there gradually developed a class of persons who assumed, or to whom was assigned, this practice. These acquired considerable influence and often power with their people, owing to their supposed ability to cast out evil spirits or demons (disease) from those thought to be thus afflicted. With the disappearance of the belief in evil spirits as the cause of disease and the advent of real medical practitioners, the physician is found occupying an enviable position in the community. He was beloved and respected by all; he was the adviser and counselor of the family; he cared for them all in sickness and in trouble from the grandmother to the babe just born. In those days the family physician was supreme and had the universal confidence. Unfortunately, the prestige of the family physician now seems to be on the wane. He no longer occupies the position in the hearts of the people that he formerly held. What has caused the almost complete disappearance of the family physician? There are two lines of influences that have contributed to this result. One of these lines concerns the people, and the other line concerns the physician himself.

DECLINE OF THE FAMILY PHYSICIAN

Let us consider for a few minutes the various factors that have been instrumental in causing the medical prac-

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titioner to lose his honored and respected position as the family physician.

A few years ago it was suggested that the school children be examined to determine standards of weight and height and general physical development, and later for the purpose of detecting physical defects. Of course, this was to be done by medical men, and, as is usually the case, the medical profession stood ready and willing to do this public service gratuitously. The results of these examinations brought to light so many defects in the school children that boards of education, and in some communities health officers, employed part-time young physicians at small salaries to continue inspection of school children and to point out any physical defects in them that might be found. Later nurses were employed to do this work and were to report to the parents of the children any physical defects that they thought they had found, and often to recommend to the parents that they take the child to some clinic or to some particularly friendly physician to have the defects remedied. The school physicians at times, and even the nurses, were permitted to treat certain conditions that they found present in the children. The effect of this was gradually to wean some of the parents of these school children away from their family physician. Health officers and boards of health, overstepping their legitimate field of operation, began to treat certain individuals and to furnish advice, and in some instances remedies, free to those whose economic status did not entitle them to free treatment. This again took a certain number of people away from their family physicians.

Following this came the infant welfare society. Stations were established in different locations throughout the city to which mothers were invited to bring their children and receive instructions on how to feed them, and to have them weighed and measured to see whether they were developing properly. Here, again, prominent physicians often volunteered their services altruistically for the good of the community. While these infants' clinics were established primarily for the benefit of those unable to pay a physician for his services, it was not long before well-to-do mothers began driving up to these stations in their automobiles with their children to receive instruction and advice free, thereby not only imposing on the generosity of the medical profession, which was giving its service ostensibly to the poor, but also estranging themselves from their family physicians.

A few years ago, workmen's compensation acts were passed by the legislatures of the various states. These acts, which affected certain industries, provided that an employee injured during the course of his employment was to receive a definite amount of compensation during the period of his disability and that the bills up to a certain amount would be paid for his medical and surgical care. The employer was to pay the physician's fee provided the employee accepted the physician chosen by the employer. In case the injured one wished to have his family physician or any other than the physician suggested by the employer, he could do so only at his own expense. These laws again took a great deal of work away from the family physician. These workmen's compensation acts brought into being a number of insurance companies organized for the purpose of insuring the industries against loss by reason of injuries to the employees. These insurance companies assumed the right to designate the physician who was to treat the injured, and if he had any other physician than the one designated he would do so at his own expense. Many of these insurance companies, in order to save money, employed young physicians with little experience in handling industrial injuries to look after their cases, often paying them a small and inadequate compensation, the companies seemingly not realizing that the most expensive service they can have is cheap surgery, on account of the frequent bad results which many of the injured suffer from incompetent treatment. These injured employees are deprived of the privilege of having their family physician in on the case, should they so desire, except at their own expense, owing to the rule of doubtful legality promulgated by the insurance company that they must have the physician designated by it.

A few years ago, some of the life insurance companies began urging their policyholders to have a periodic health examination with the idea that it would increase their longevity. Soon after this, commercial institutions organized for profit appeared on the scene for the purpose of making these periodic examinations. As a result of their altruistic sophistry, many misguided physicians throughout the country were induced to lend their services for the purpose of making these examinations. An intensive advertising propaganda was carried on throughout the country urging the people to apply to the home office for the examination. Any person writing the home office for an examination was referred to one of the company's examiners in the town where the applicant lived. The examiner filled out a very elaborate report of his observations which was forwarded to the home office of the company. For this examination and report the company paid the physician making them the sum of $3.50 or $5. After reading over the report, the home office advised the person examined of the substance of the report and suggested what he should do for any apparent defects that were found. For this advice the home office charged the sum of $25. The physician making the examination is not supposed to have sense enough to advise the patient about his condition, but this must be done by some one at the home office, perhaps a thousand miles away, who has not seen or talked with the patient and whose only knowledge of him is that furnished by the examining physician. The value of this knowledge by being sent to the home office has been amplified from $3.50 to $5, the amount paid the physician, to $25, the amount paid the home office. In other words, the physician has been induced to sell his brains and skill to a jobber for $5, who immediately resells it to the consumer for $25. This is merely another way in which the confidence of the people in the family physician is undermined. If there is any one who should make these examinations, it is certainly the family physician who is thoroughly acquainted with the patient and his environment.

These are things that have had their origin with the people and have had a tendency to wean them away from the family physician. However, it may be said that some of them at least have been encouraged by the profession. I believe that the medical men who fostered some of these movements were actuated by the traditions of the profession and little realized what the ultimate effect on the practice of the family physician would be. It is not to be denied that some good has been accomplished by some of the measures that have been mentioned, but it remains to be determined whether or not the sum total of good equals the loss which the people have sustained by reason of their being without the guiding influence of a good, conscientious family physician. As already stated, not all of the influences

that have brought about the present condition have had their origin with the people; the profession itself is responsible for some of them.

OVERPRODUCTION OF SPECIALISTS

In the first place it must be acknowledged that there are fewer medical students today that are fitting themselves to be good general practitioners, and the reason for this must be laid largely at the doors of our medical schools. Medical students today seem to be imbued with the idea that the science of medicine is so extensive that no person can hope to compass the whole subject, and therefore each one should try to limit himself to some particular branch. This idea has been instilled into the minds of the students by the present method of teaching in our medical schools. It is an idea in which I do not concur and which I believe is productive of a great deal of harm. As a result of this teaching, the student becomes convinced early in his college career that, since it is not possible for him to become proficient in the entire subject of medicine, he must be a specialist in some branch long before he has completed his fundamental medical education. While it is freely acknowledged that no one mind is capable of mastering all there is to know about medicine any more than it can all there is to know about any other great science, still I am thoroughly convinced that any person of ordinary intelligence can acquire a good comprehensive knowledge of the fundamental sciences of medicine, a knowledge which, with a proper amount of experience, will enable him to make of himself a sound medical adviser for his patients.

The custom that prevails in most medical schools of permitting students to take so many hours of elective studies I believe is bad, as it stimulates the desire to specialize. Again, too much time is spent in the various laboratories and in experimental work until the student is led to think that disease is to be located in a test tube instead of in a living human being. It is a mistake to permit students to spend too much time in original experimental or research work. Some professors at times induce students to undertake a piece of original investigation to work out some point in which the professor is interested and which he may later publish as coming from his laboratory. This may be a good thing for the professor, but it takes the time of the student that ought to be spent to better advantage. It is a mistake to permit undergraduate students to spend their time doing original research work. The function of a medical school is to teach students the fundamentals of a science and the art of applying them to human beings, the object being to make good general practitioners of medicine. If more emphasis were put on this phase of the subject there would be fewer ready-made specialists turned out of our medical colleges.

Many communities are sadly lacking in good general practitioners; the number of specialists in some of them is as high as 30 per cent of the total and many of the remainder would like to devote themselves to a specialty if their practice would permit it. Specialization in medicine, I think, is greatly overdone. This is perhaps largely the fault of the people, who seem to be obsessed with the idea that there must be a specialist for every human ill. As a result, specialists began to multiply in order to satisfy this popular craze. What the people need more than anything else are more general practitioners, men with a thorough knowledge of general medicine, men who may become intimately acquainted with the lives and habits of their patients and who may be able to care for the great majority of their ailments, since it is only a minority of these that require the attention of a specialist. I trust that no one will think for a minute that I wish to belittle or to depreciate the value and necessity of legitimate specialists, since I have the highest respect and regard for them; but it is the poorly prepared pseudospecialist who springs up over night that I wish to condemn.

THE HIGH COST OF DOCTORING

One hears and reads much today about the high cost of doctoring. In the October number of the *North American Review* an article by T. Swann Harding entitled "The High Cost of Doctoring" is quite typical of this class of complaints. This writer attempts to show, among other things, that the medical profession in general is incompetent, and he quotes in substantiation of this statement the result of a study of intelligence tests made on 43,000 army officers including physicians. He says that in class A there were found 66 per cent of the engineers and only 27 per cent of the physicians, while in the lowest class, or class C, there were only 5 per cent of engineers but 40 per cent of physicians. He concludes that these tests mean something. He ends by saying that the intelligence of medical men, including dentists and veterinarians, is "actually little above the level of street car employees, barbers, and grocery clerks." He then details a personal experience which he says he had in one of Detroit's first-class hospitals. He proceeds to condemn in excessive terms everything and everybody, from the way he was handled when he entered the hospital to the doctor, the intern, the nurse in charge, the food, the service and the amount of the bills, and he ends by saying that, while he recovered and the bills did not bankrupt him, still he could not feel that he had gotten his money's worth. This is a vituperative article condemning the profession for its small amount of intelligence and for its venality. As there are always two sides to every question of this kind, and as the other side of this one is not available, it is needless for us to comment on why a man should so conduct himself in a hospital as to warrant the kind of treatment which he says he received; but let us be charitable and attribute it to the mental state induced by his illness.

FEES

The medical profession has come in for many opprobrious remarks on account of the charges made for services. No attempt, however, seems to have been made to analyze the question to see whether the complaints have been just or not. That some of the charges may have been exorbitant there can be no question, but that such has been the rule must be denied. Nor is the profession entirely to blame if the fees have been raised in certain cases. The people have gotten away, as has been shown, from the custom of consulting their family physician in ordinary illnesses. They seem to have developed the idea that there must be a specialist for every ill, and that they must have as many physicians or specialists as they may imagine that they have diseases. It is no wonder, then, that the profession should yield to the demand of the people and provide so-called specialists to meet their every whim. Of course, the people expect to pay the specialist more, and if he doesn't charge more it is thought that he cannot be much of a specialist and they are dissatisfied. It must be acknowledged that this has given rise to a certain amount of commercialism in the profession which is to be greatly deplored; but it must be admitted that many

physicians act just like other human beings. Here is a sort of vicious circle: the people look for specialization; the medical schools turn out more specialists; specialists, being poorly versed in general medical knowledge, become narrow minded and see nothing but their particular subject in the patient, overlooking the fact that a human being is not simply a group of disconnected functions but a harmonious combination of many interrelated functions.

There is another phase of the fee question that seldom or never receives any thought or consideration at the hands of the people, and that is the matter of time. In the business world, time and money are considered almost synonymous terms. What would happen to an industry if it were to spend as much time in unproductive labor as does the medical practitioner? Physicians work more hours in the twenty-four than any other class, yet they are constantly being called on to give more of their time to altruistic work. By this I do not mean charity to individuals, as that is a personal matter, but time and service given to the public for which the public pays nothing. An excellent illustration of this I read in a Chicago paper a few days ago. Notice was given that there was about to be established as a regular thing a preschool clinic, the proposition being to have all children examined and any defects found remedied before the children began going to school. It then stated that, in order to do this, physicians were to be asked to give two hours a day of their time to the work for nothing. If eight hours is to be a day's work, what would a business man think of being asked to give 25 per cent of his time to the public for nothing? And this is but one of the many requests for altruistic work that the medical practitioner is called on to do.

Medicine is not a dead subject but a living one that is progressing at a more rapid pace today than at any time in the history of its existence. Any physician, to keep abreast of the progress that is being made, must be an eternal student. No eight-hour work days are his; the candle frequently burns at both ends.

To be a good practitioner takes not only most of the physician's time but also much of his money, since new books, periodicals, paraphernalia, and time spent visiting institutions of learning in order to improve one's knowledge are expensive. People should not expect to obtain good things for nothing. It is frequently said that rural districts in many instances are without good physicians and often without any at all, and this by some is attributed to the scarcity of medical practitioners. This, however, is not true since there are plenty of physicians in the country. The reason rural districts are often without good medical service is that the community will not make it an object for a physician to locate and remain there. The rural district may have any kind of a physician it wants, a good one or a poor one according to what it is willing to pay for. The laws of economics look askance on the idea of the people getting something for nothing. The lesson to be learned from this is that the people have duties and obligations to the medical profession as well as the medical profession to the people.

There is evidence of a rather widespread feeling that the medical profession is not satisfactorily fulfilling its obligation to the people. It is acknowledged that the highest class of service is readily available to those who are able to pay for it, but the claim is made that there is no provision made for the distribution of this service to all the people at a cost within their means. I believe that it is an absolute obligation of the profession to provide high class medical service to all the people all the time. The reason for this belief is based on the fact that the practice of medicine is a monopoly, not such a monopoly as is created by law in the case of an industry or a public service company, but a natural monopoly by reason of the fact that no one except a physician is capable or competent to do the work. The law protects the rights of its created monopolies but fails to protect the medical profession in its natural monopoly. May not the reason the state fails to protect the medical profession in its monopolistic rights be that the profession does not provide high class services to all who are in need of them?

NEED FOR COMMUNITY MEDICAL CENTERS

How are we to regain the complete confidence of the people, which now seem to be on the wane? How are we to counteract the pernicious influence of the hundreds of lay organizations created for the purpose of bringing to the great masses the kind of medical services that they are in need of and at a cost within their means? This I believe can be done only by organization, not such an organization as we now have but an organization for business, for the business of distributing a high class of medical care to all who are in need of it. I believe that every county society should organize as a business institution with headquarters properly equipped for handling all kinds of ambulatory cases. This should be a community medical center and provision should be made also for the care of all those who need hospitalization or bed treatment. The service should be arranged for by the institution itself, each physician contributing a certain amount of his time and skill to the work. It is to be understood that this is not to be a charitable institution where service may be had free. Public charges should be paid for at reasonable rates by the county. Services to all others should be paid for at rates within their means as determined by their economic status. Those who are able to pay the regular rates of physicians should have their own, as at present. Such an institution should not only be self-sustaining but should be able to pay reasonable compensation to the physicians who are doing the work. Such an institution should be of great advantage, financially and otherwise, to the profession. It should keep the control of the care of the sick within the confines of the profession and not allow it to drift into the hands of foundations and lay organizations.

25 East Washington Street.

Epidemiology.—The various secretions of the body exert a variable bactericidal power. In particular the acid gastric juice is very potent in this respect. According to Saranelli the anthrax bacillus is destroyed within five to seven minutes' exposure to the secretions of the stomach, and other pathogenic bacteria within shorter periods. This would almost exclude the stomach as a means of transmission from mouth to intestine. Calmette, however, points out that if a microbe is protected by being encased in a globule of fat it may escape, and this undoubtedly occurs in tuberculosis. Saranelli holds that in the majority of intestinal infections the microbe penetrates the mucous membrane of the mouth or pharynx—e. g., by the tonsil—and is carried by the blood stream to the walls of the intestinal canal and is there secreted. This he terms the *enterotropism* of the bacteria. The bacteria of cholera, typhoid, dysentery, even appendicitis he believes reach the intestines à derrière—a tergo—in this manner.—Stallybrass, C. O.: The Principles of Epidemiology, *J. State Med.*, September, 1928.

TREATMENT OF PERNICIOUS ANEMIA*

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AND
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There was but little significant advancement in the therapy of pernicious anemia from the time that Addison described it in 1855 until the publication in 1926 of the discovery by Minot and Murphy[1] that liver contained a principle which stimulated red blood cell formation. These Harvard investigators found that a diet rich in liver was regularly followed by a remission of the disease, without the time honored therapeutic agents arsenic and blood transfusion. It is now well established that one-half pound (0.2 Kg.) of liver taken as part of the daily diet will cause an increase in the number of new red blood cells in the circulation. By the fourth day of such treatment the number of reticulocytes, which usually constitute about 1 per cent of the total number of red blood cells, begins to rise, continuing for from five to six days, and reaching a maximum of from 5 to 50 per cent on the seventh to the ninth day of treatment. By the twenty-first day the number of reticulocytes returns to normal. After this initial outpouring of reticulocytes the red blood cells are delivered from the bone marrow in a more mature stage and the total red blood cell count begins to increase. The new corpuscles are more normal in size, shape and color, and the abnormally large cells and the distorted ones rapidly decrease in number. The accompanying chart shows the increase in percentage of the cells measuring 7.5 microns (the average normal) in the blood of a patient with pernicious anemia as the remission, which was produced by an extract of liver, progressed.

Effect of Agent in Cell Stimulation

Condition of Individual	Predominant Stage of Erythroblastic Cells in Bone Marrow	Primary Effect of "Stimulation" (Liver Therapy)
Pernicious anemia; red blood cells less than 2½ million per cubic millimeter	Megaloblast; normoblast	Delivery of reticulocytes to peripheral circulation
Pernicious anemia; red blood cells 3 million or more per cubic millimeter	Normoblast; reticulocytes; few adult cells	Few reticulocytes; most of cells adult stage
Normal individual	Reticulocytes; adult cells	Adult cells

MECHANISM OF ACTION OF LIVER OR LIVER EXTRACT

When liver or liver extract is taken by a patient with pernicious anemia whose blood count is 2½ million or less, the number of reticulocytes increases appreciably in the peripheral circulation during the first one or two weeks. When the liver or liver extract is taken by a patient with pernicious anemia whose count is higher (3 million per cubic millimeter or above) or by a normal person, the increase in the number of reticulocytes in the blood stream is very slight or negligible. This appears to be related to the stage of the red blood cells in the bone marrow. The accompanying tabulation, constructed from the work of Peabody[2] and others, indicates the effect of an agent that stimulates cells to advance in their development to maturity. This appears to be the effect of the active substance in liver, and the cells most markedly affected are the megaloblasts. The active principle, when given in the form of liver extract, does not appear especially to influence hemoglobin formation, although other substances in whole liver may be effective in this respect.

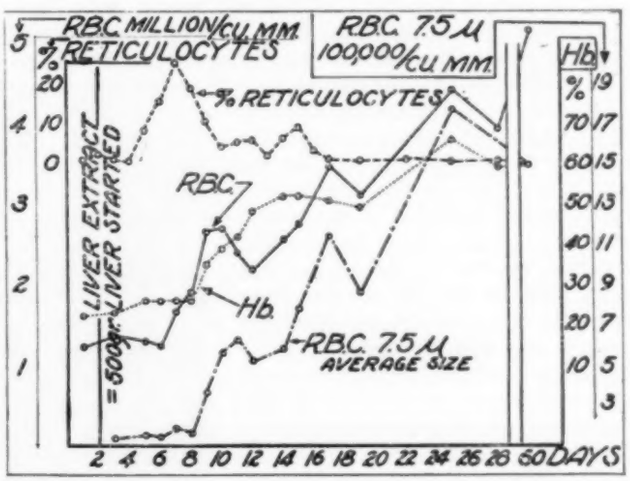

Fig. 1.—Red blood cell, reticulocyte and hemoglobin increase after liver therapy, with curve showing increase in the number of normal sized red blood cells.

CLINICAL CHANGES

Even before the first morphologic blood changes can be noted, there is a very definite subjective improvement in the patient. On the third day, occasionally sooner, there is an increase in the appetite, a feeling of new strength, and a reawakening of interest in the surroundings. During the next week, before there is any demonstrable change in the red blood cell count, the pads of the fingers and palms, the chin, the cheeks and the tip of the nose may become flushed. This reaction appears to be a vasomotor phenomenon and is very striking, especially when the red blood cell count has been as low as 1 million per cubic millimeter. The creases in the palms of the hands remain pale, however, and do not take on their red color until the blood count approaches about 2½ to 3 million red blood cells per cubic millimeter. Nausea, if it has been present, rarely lasts after the fourth day, and diarrhea or constipation usually is relieved. Some patients, especially those taking whole liver, may complain of a mild diarrhea during the first week, but this soon disappears. The feeling of heaviness in the epigastrium is lost, although some patients continue to be bothered with abdominal distention for long periods. The stools, which often have a very offensive, putrefactive odor during the relapse, become more normal after a few weeks. The tongue, which is frequently sore when the treatment is first begun, usually becomes normal (fig. 1). Occasionally the condition of the tongue may be greatly improved by painting the lesions with 1 or 2 per cent silver nitrate solution. However, the glossitis may recur in a mild way during the remission, as the ingestion of liver does not seem to be entirely specific for this symptom.

* From the Thomas Henry Simpson Memorial Institute for Medical Research, Ann Arbor.
* Read before the Section on Practice of Medicine at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 13, 1928.

1. Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87**: 470-476 (Aug. 14) 1926; A Diet Rich in Liver in the Treatment of Pernicious Anemia, ibid. **89**: 759-766 (Sept. 3) 1927.

2. Peabody, F. W.: The Pathology of the Bone Marrow in Pernicious Anemia, Am. J. Path. **3**: 179-202 (May) 1927.

The neurologic symptoms and evidences of degenerative changes in the nervous system seem to be benefited only secondarily when the blood count approaches normal, as there appears to be no direct action by the liver or liver extract on the diseased nerve tissue. Three patients in our experience have developed neurologic changes after their red blood cell counts had increased to around 5 million per cubic millimeter. Nevertheless, certain of our patients who were unable to walk and had incontinence of urine and feces have regained the power of locomotion, control of urination and defecation, and severe decubitus ulcers have healed after the taking of liver extract, dilute hydrochloric acid and a liberal diet, in conjunction with massage, regulated exercise and heat applied to the muscles of the legs, arms and back. Patients with marked neurologic changes and those with active infections (the former frequently having cystitis) do not respond as quickly to the liver therapy as those who have no complications. Infections which we have observed to delay recovery included rhinitis, pharyngitis, pleurisy, bronchitis, gallbladder disease, cystitis and infected decubitus ulcers. While the dyspnea on exertion and other features of anemia disappear as the blood count rises, the feeling of weakness may remain with the patient until he is well into his period of convalescence. The patients perspire on slight exertion and require considerable rest. Eventually this weakness disappears and a hard day's work may be accomplished with ordinary effort. There is an actual increase in the muscular power. The tingling sensation in the hands and feet may persist for months after the blood has returned to normal, but it usually becomes less prominent as time goes on. The tingling appears to be due to involvement of the nervous system and is not related to the local blood content of the peripheral capillaries, as stasis and hyperemia, produced by a tourniquet, have no effect in relieving it. Edema of the ankles, which is frequently observed, usually disappears as the red blood count approaches normal, but in some patients the edema may persist long into convalescence. The latter patients are unable to hold their breath, without previous deep breathing, for fifteen seconds or longer as can the former group. Although these patients show no definite cardiac changes, it is possible that this factor may be of importance in this connection. The "haemic" cardiac murmurs slowly decrease in itensity and finally are replaced by normal heart sounds. Sexual activities, which are usually lost during the relapse, return to normal with the disappearance of the anemia.

TREATMENT

For the average patient, without complications, one-half pound (0.2 Kg.) of beef, calf's or other liver should be prescribed daily. The liver may be taken raw and finely ground, or it may be cooked in any way that makes it palatable and easily digested. As the active principle is soluble in water, any liquid used in boiling should be added to the liver when it is eaten. The liver is more easily digested if it is finely ground. When liver extract [3] is used (e. g., Lilly's number 343), the contents of from 3 to 6 vials, or the equivalent of one half pound (0.2 Kg.) of raw liver, may be dissolved in water or a suitable liquid, and taken once a day. Each vial contains the extract made from 100 Gm. of liver. For very sick patients, the larger dose should be used. There is some evidence that a very large dose (equivalent to several days' supply) taken at one time is as effective as the same amount taken at intervals. There are several liver extracts available commercially, but evidence has not been produced which proves that they are all potent. Furthermore, the potency of a given commercial extract may vary from time to time. An effective liver extract should cause an appreciable rise in the number of reticulated red blood cells in from the fourth to the sixth day, in patients whose initial red blood count is below 2½ million per cubic millimeter. The higher the initial red blood cell count, the less marked is the immaturity of the newly delivered red blood cells, and those showing a reticulum are but few in number in the peripheral circulation. Some prescribe dilute hydrochloric acid (2 to 4 or more cc.) in a glass of water or lemonade with meals. The liver diet is effective without this, but many feel that it has a therapeutic action. The rest of the diet should be liberal and well balanced, and should include meat, eggs, greens, vegetables, fresh fruits, especially peaches, apricots and strawberries. Fat does not appear to hinder the development of the remission, but heavily fried foods, especially liver, are not desirable. One patient fried the liver so long that it no longer tasted of liver, and her convalescence was long delayed. She improved rapidly when the liver was given in an available form.

Comatose or semicomatose patients may be revived with a blood transfusion, and the liver may then be given in the form of the extract. In these desperately sick patients it may be necessary to resort to the use of the stomach tube.

Patients should be watched carefully to note whether there is retention of urine, as the bladder sensations may be lost with the neurologic changes in the spinal cord. If retention is noted, it may be necessary to use the catheter. The patient should be urged to try to void every three hours. In this way the sensory part of the process is not an important factor, and control of the bladder may be regained. Control of the bowels is a more difficult matter, but several patients who had been incontinent at times regained control of defecation by careful attention to regularity of movements. Abdominal distention may be a troublesome feature and every effort should be expended to control it.

Patients with pernicious anemia, especially those with changes in the spinal cord, must be given careful attention to prevent bed-sores. These may form over any of the bony prominences, especially the sacrum and hips. Ulcerations may appear in the intergluteal folds. Besides the systemic treatment, reddened skin areas may be painted daily with collodion solution. The ulcers tend to heal more rapidly and with less discharge if they are exposed constantly to the light from a carbon filament electric light bulb. Deep ulcers may be treated with hot packs of gauze wet with a saturated solution of boric acid until the infection clears, and the parts then exposed to air without dressings. An extensive ulceration should not necessarily cause discouragement, lesions having been found to heal even after sloughing of parts of the sacrum and surrounding tissues.

When the blood count is below 2 million per cubic millimeter, especially if the patient is weak, bed rest should be prescribed; but the patient should be allowed to get up as soon as his strength will allow it, in order to avoid the skin irritation.

When the patient is unable to control his legs, he should be given passive and active exercises and should

3. Cohn, E. J.; Minot, G. R.; Fulton, J. J.; Ulrichs, H. F.; Sargent, Florence C.; Weare, J. H., and Murphy, W. P.: I. The Nature of the Material in Liver Effective in Pernicious Anemia, J. Biol. Chem. **74**: lxix (July) 1927. Cohn, E. J.; Minot, G. R.; Alles, G. A., and Salter, W. T.: II. The Nature of the Material in Liver Effective in Pernicious Anemia, ibid. **77**: 325-358 (May) 1928.

be encouraged to try to walk with aid. The muscles may be massaged, coincident with the application of dry heat. Some patients are able to walk better if they separate their legs and use a wide base. Many apparently hopeless patients have regained the use of their legs under this regimen, although they remain somewhat spastic. In patients with mild loss of joint sensation, every effort should be made to teach them to take advantage of other sensations to guide their movements. Bandages may be tied about the legs, or adhesive tape may be strapped from areas of no sensation to areas where the sensation is normal. Occasionally enough sensation may be obtained when the shoe-strings are tied very tightly to aid the patient in walking more normally. The vibration sense of the tibias may be regained as the patient improves.

The blood count usually reaches normal in from two to four months. During this time the liver diet or the taking of liver extract must be carefully followed. When the red blood cell count is normal, the amount of liver may be reduced to one-half pound (0.2 Kg.) five times a week, and later, with periodic blood examinations, to three times a week. The maintenance dose of liver extract has not been determined, but the minimum probably is around the equivalent of 300 Gm. of liver three times a week. Some patients will require more. In reducing the amount of liver or liver extract, it must be remembered that a spontaneous remission lasts for varying lengths of time and the blood count may be maintained not because of the small amount of ingested liver but because of the natural duration of the induced remission. When this terminates, there will be a relapse if the liver intake is too low. Several patients have shown a tendency to a form of relapse even while on an adequate liver intake. This manifests itself by a loss of appetite, sore tongue, an aversion for liver, and, when it is discontinued, the development of anemia. It is during this period that liver extract will be found valuable to tide over the days when the patient cannot take liver. There appears to be less tendency to develop an aversion to liver extract than to liver.

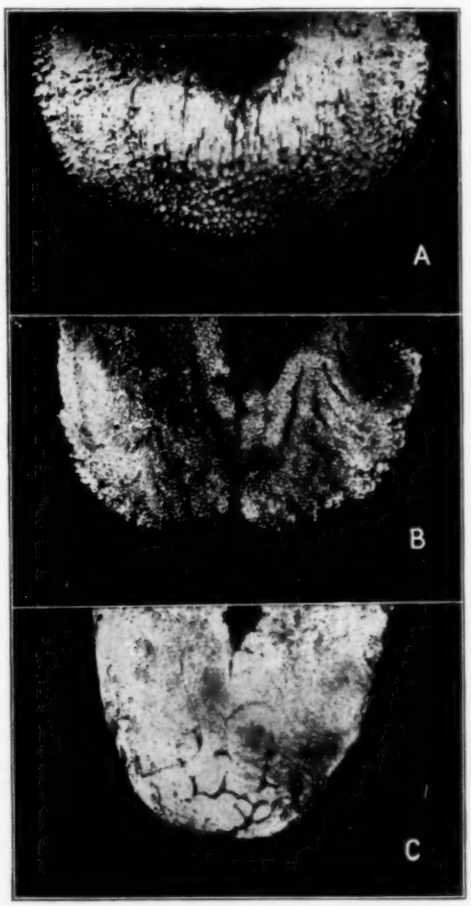

Fig. 2.—Imprints of tongues on smoked paper: *A*, normal person, showing discrete papillae; *B*, tongue of patient with pernicious anemia, showing atrophic areas (upper left); *C*, tongue of patient with pernicious anemia showing extreme degree of atrophy of the papillae.

While the liver extract appears to be specific for pernicious anemia, it has little or no effect on most secondary anemias. For this reason a correct diagnosis is very important. Whole liver has an additional element, not possessed by this extract, which may be valuable in other types of blood regeneration. The diagnosis should be based on an adequate history, the characteristic physical observations, mild or severe neurologic symptoms, achlorhydria, anemia with macrocytosis, a wide dispersion of the sizes of the red blood cells, a high color index, leukopenia, a mild thrombopenia, and a high icterus index and bilirubin content in the blood serum. The stools should be studied for parasite ova and for blood. The therapeutic test—feeding liver to see whether the anemia will disappear—may cause loss of valuable time in anemias due to chronic hemorrhage or those associated with cancer.

Treatment is not complete unless details of ordinary hygiene are carefully followed. Sunlight may have more than incidental value, and there is some work that suggests that ultraviolet rays may induce a remission.[4] Focal infection should be eliminated whenever possible, particularly if the patient does not show a favorable response to liver therapy. Teeth should not be removed unless one is fairly certain that the remaining ones are adequate for the proper chewing of food or that a suitable false set can be provided. The occasional occurrence of a nutritional anemia in adults from defective ability to take solid food makes this point one of importance.

A thorough and widespread use of the liver diet and of effective liver extracts has placed the treatment among the standard methods of treating disease. Problems for the future are isolation of the active principle of liver, determination of the maintenance dose, accessory food factors in cell and hemoglobin formation, and the adequate treatment of neurologic symptoms.

SUMMARY AND CONCLUSIONS

1. The liver diet treatment of pernicious anemia of Minot and Murphy and the use of adequate liver extracts have been found to be a valuable therapeutic advance in the treatment of the disease.

2. The progress of the treatment may be noted during the first two weeks by the change in percentage of the reticulated red blood cells, and after this by the total red blood cell count and hemoglobin percentage.

3. The type of young or new red blood cell delivered into the peripheral circulation depends on the stage to which the erythroblastic tissue in the bone marrow has developed. When the bulk of the cells are in the nucleated (megaloblastic) stage, the first evidence of stimulation (e. g., liver therapy) is increased development to the next stage (reticulocyte). When the bulk of the cells are in the latter stage, stimulation is followed by the increased production of mature cells.

ABSTRACT OF DISCUSSION

DR. JAMES H. MEANS, Boston: The authors have given us a very complete description of what happens when either liver or this remarkable liver fraction which Dr. Cohn has isolated is fed to patients with pernicious anemia. Our experience is

4. Macht, D. I.: Etiology, Diagnosis and Treatment of Pernicious Anemia, J. A. M. A. **89**: 753-759 (Sept. 3) 1927.

like his and, I think, the experience of every one who has used these methods is the same. With regard to symptomatology, the only thing I shall add is the rather striking change in the psychologic picture that occurs in some of these people, which has impressed me as being a little short of miraculous. We all know about the blood picture. We have been told about the cord manifestations, the numbness and tingling being sometimes improved, but less has been said about the phenomena resulting from disturbed cerebration. Many of these people present a psychosis that clears up when liver extract is fed, as does the befogged condition in myxedema when thyroid or thyroxin is given. What the profession needs to bear in mind about this whole matter is that it appears that the syndrome called pernicious anemia is certainly in part a deficiency phenomena, but it is unlike any other deficiency. It is not like scurvy; it is not a deficiency such as myxedema because the substance is found in many different tissues. It is a new sort of deficiency. I think that the deficiency is probably a result and not a cause of the disease. The cause of the disease we know nothing about and, therefore, our treatment is a symptomatic one. This treatment has to be continued during the remainder of the patient's life just as insulin is given in diabetes or thyroxin or thyroid in myxedema. Another interesting thing is that this remarkable substance seems to be effective in all anemias in which there is a blood picture that is similar to idiopathic pernicious anemia. The authors have shown that the reaction in fish tapeworm anemia is like that in pernicious anemia. A case of sprue reacted in the same way. This man came to us with typical sprue which he had had for four or five years. We started giving him an active liver fraction and there was the same response that one might get in pernicious anemia. Diarrhea stopped at once, and when the patient left the hospital he felt, as he said, "perfectly well," having come in really very close to being moribund.

DR. H. Z. GIFFIN, Rochester, Minn.: Is it necessary for us to continue the use of hydrochloric acid in these cases? For many years we have apparently obtained good results from large doses of hydrochloric acid and would be slow to give up its use; yet we know that patients improve on liver whether or not they are given hydrochloric acid. This question, I believe, is not yet definitely settled. Another question concerns the diet. It would seem to be important that the patient should receive the proper kind of food aside from liver. While the high vitamin diet has not yet been definitely proved to be effective of itself, there are some indications that in conjunction with liver it may be efficacious. In fact, Conner has shown that the high vitamin diet in conjunction with small quantities of liver brings about satisfactory improvement. Our experience with cases showing advanced neurologic changes has led us to guard against confining the patients to bed. If taken off their feet they are very likely to get worse. It will be interesting to follow, for a long time, the cases showing marked neurologic changes, in the hope that later there will be some real evidence of improvement as a result of the liver diet. A number of patients are seen with severe chronic anemia, a low color index and achlorhydria. They do not manifest any of the definite features of pernicious anemia, and other diagnoses are excluded. In such cases the question might arise whether or not it will be possible to use the liver diet as a diagnostic test. Would an increase in reticulocytes and improvement of the anemia indicate that we might be dealing with a case in which pernicious anemia might develop? The authors, I believe, have given us the best chapter on the treatment of pernicious anemia that has thus far been prepared.

DR. WALTER L. BIERRING, Des Moines, Iowa: The use of the extract or fraction by itself has not seemed sufficient to keep up the normal blood level, but an occasional addition of fresh liver is very helpful and appears to maintain the normal erythrocyte and hemoglobin curve more effectively than the use of liver extract alone. A second point is with reference to the effect of liver therapy in influencing our ideas as to the etiology of pernicious anemia. The present conception is that the lacking element in blood cell and hemoglobin production is supplied by the liver diet. This, for the moment at least, seems to discard the former microbic origin of this condition. According to Whipple, this deficiency substitute is not confined to liver tissue but is equally present in kidneys and other parenchymatous organs. The question naturally arises, To what extent do pathologic changes in the liver have a causative influence on the anemia? It is well known that chronic nephritis and other disease conditions of the kidneys have a definite anemia as a part of the symptomatology. It will be interesting to determine to what degree this anemia is a result of kidney changes, and, again, what is the fundamental relation of structural tissue changes to the causation of the condition referred to as pernicious anemia.

DR. RAPHAEL ISAACS, Ann Arbor, Mich.: Dr. Means brings out the point of psychic changes after taking liver or liver extract. This is very remarkable in connection with the improvement of the appetite. This improvement of the appetite will start on the second, third or fourth day, and may be very marked. It will frequently start at a certain hour and a patient will suddenly sit up and say that he wants something to eat. Sometimes it is spectacular. In connection with the use of liver in sprue and in tapeworm anemia, the question of whether liver and liver extract are of value in secondary anemia is of importance. In secondary anemia, as far as we can see, liver extract will have no specific value, although liver is as good a food as one could wish for in a general diet. In the treatment of pernicious anemia, it must be remembered that a general diet which is nutritious and high in calories is important because the patients usually take on weight quite rapidly. I think it is wise to give hydrochloric acid. In our clinic, we differ as to its value, but I would prescribe hydrochloric acid in the treatment of the disease. I hesitate in recommending the use of liver extract as a diagnostic agent because we do not know just what anemias respond to liver extract and valuable time may be lost in seeing whether there is a response.

THE ROENTGEN RAY IN THE DIAGNOSIS OF PRIMARY PULMONARY NEOPLASM *

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Clinical and postmortem studies show that within the past twenty-five years there has occurred a tremendous increase in the frequency of primary pulmonary malignant conditions. While the older statistics indicate that primary lung carcinomas represent only 1 per cent of all primary malignant growths, recent authentic data [1] disclose an incidence as high as 9.4 per cent and 15.5 per cent. Berblinger [2] reports an incidence of 8.3 per cent in the period 1920 to 1924, as compared to 2.2 per cent in 1910 to 1914. Staehelin [3] reports a rate of 5 per cent from 1912 to 1924, as compared to 1.7 per cent before 1906. Brunn [4] in an exhaustive statistical study shows that in 482,671 autopsies performed in the period 1872 to 1898 the incidence of primary lung carcinoma was 0.04 per cent; while in 192,271 autopsies performed in the period 1898 to 1916, the incidence of lung tumors was 0.24 per cent, or six times greater. In the period 1916 to 1924 among 33,308 necropsies the incidence was 0.21 per cent, or more than five times greater than the first figures mentioned.

The increase in the incidence of these tumors is ascribed to many causes. The influenza pandemic, the

* Read before the Section on Radiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

* I am indebted to Dr. Lewis K. Neff, physician in chief of the Harlem Hospital, from whose service many of the case records which were used in the preparation of this paper were taken.

1. McCrae, Thomas; Funk, E. H., and Jackson, Chevalier: Primary Carcinoma of the Bronchi, J. A. M. A. **89**: 1140 (Oct. 1) 1927.

2. Berblinger, W.: Die Zunahme des primären Lungenkrebses in den Jahren 1920-1924, Klin. Wchnschr. **4**: 913 (May 7) 1925.

3. Staehelin, R.: Ueber die Zunahme des primären Lungenkrebses, Klin. Wchnschr. **4**: 1953 (Sept. 24) 1925.

4. Brunn, Harold: Primary Carcinoma of the Lungs, Arch. Surg. **12**: 406 (Jan.) 1926.

inhalation of tar particles and the "gasoline age" need only be mentioned as possible etiologic factors. However, it is well to reflect that the tremendous decline in mortality from childhood diseases and tuberculosis naturally tends to increase the death rate from those diseases to which men past middle life are subject, and many who would have succumbed to tuberculosis have been spared only to be taken away by malignant disease, including cancer of the lungs.

It is to the credit of the clinician that even pathologists admit that primary pulmonary malignant conditions are now recognized ante mortem with marked precision and frequency, and those long interested in pulmonary diseases cannot fail to realize that this diagnostic acuity was unquestionably engendered by the great antituberculosis campaign waged in all civilized lands. For it is primarily because of his efforts to establish or rule out a diagnosis of tuberculosis that the clinician's attention is directed to other pulmonary conditions, of which cancer is assuming a greater and greater significance.

There are a few cardinal points in the semeiology of lung tumors which, while not pathognomonic, are nevertheless of great diagnostic value when properly interpreted. It will be worth while, I believe, to consider them briefly at this time.

Experience has taught that blood spitting is complained of in most chronic pulmonary diseases, but that it is pathognomonic of none; that it is most common in phthisis, often seen in bronchiectasis and not infrequently present in chronic bronchitis, but when it occurs for the first time in one past the meridian of life, its possible malignant etiology should be excluded before the patient is reassured.

The alert physician has long known that dyspnea is not an early sign of uncomplicated pulmonary tuberculosis and that in the absence of cardiorenal disease this symptom in one past 45 years of age is deserving of careful investigation. Severe and prolonged pain in the chest is not a frequent phenomenon in tuberculosis uncomplicated by acute fibrinous pleurisy, but it is an early persistent and cardinal symptom of pleuropulmonary neoplasm and does not disappear with the advent of an effusion, as in pulmonary tuberculosis.

Fig. 1.—Abnormal shadows are not seen roentgenologically although physical observations pointed to an endobronchial tumor on the right.

The great emphasis laid on the extreme diagnostic value of afternoon elevation of temperature in phthisis has in many cases militated against the early detection of a pulmonary neoplasm, for it is not a matter of common knowledge that this symptom is present in about 50 per cent of pleuropulmonary malignant conditions. The rise in temperature is due to toxic absorption from degenerated tumor cells and septic infection of the tumor, as well as septic absorption from the dilated bronchi distal to the obstructing tumor mass.

We are beginning to realize that the development of an apparently idiopathic pleural effusion in a patient past middle age may be the first indication of the existence of a pleuropulmonary malignant growth. Sanguineous effusions are extremely rare in any form of pulmonary tuberculosis but are of great frequency in neoplastic disease. The absence of tumor cells from such effusion does not exclude the possibility of a malignant condition. On the other hand, the report of their discovery in pleural effusions should not outweigh all other evidence pointing to a diagnosis of nonmalignant disease. There can be no doubt that fewer pulmonary neoplasms will be missed if spontaneous empyemas, interlobar and pulmonary abscesses not dependent on a metapneumonic process are viewed with suspicion and subjected to careful scrutiny when they occur in patients past middle life.

Fig. 2.—Appearance of same patient three weeks later, showing extensive atelectasis of the right upper four fifths of the chest. The trachea and mediastinal contents are pulled to the right. The right side of the diaphragm is retracted.

With this brief consideration of some of the salient clinical features of lung tumors, let us see what the x-rays contribute toward their detection.

Clinicians will agree that the precision with which lung tumors are now diagnosed ante mortem is in no small measure due to the progress and development of roentgenologic technic and its universal application. But in order to derive greater benefit from the evidence supplied by this method it will be of value to delineate not only its value but also some of its limitations.

There is still no unanimity of opinion as to the histogenesis of malignant lung tumors, but it is generally recognized that pulmonary carcinoma is synonymous with bronchial carcinoma, because whether they arise from the columnar epithelium of the larger or smaller bronchi or the epithelial lining of their mucous glands, early pulmonary malignant growths are endobronchial in at least 85 per cent of cases. Malignant growths originating from the cubical epithelium of the alveoli and endothelioma of the pleura are quite rare. However, from the roentgenologic point of view, primary pulmonary malignant conditions can be more conveniently classified as follows:

1. Pulmonary form:
   - (*a*) Endobronchial.
   - (*b*) Hilar.
   - (*c*) Lobar.
   - (*d*) Excavating.
2. Pleural:
   - (*a*) With effusion.
   - (*b*) Without effusion.

ENDOBRONCHIAL TUMORS

Because of their endobronchial origin, it is not surprising that primary pulmonary malignant growths should elude the roentgen ray in their early stage of development. When the neoplasm is small it is fairly

permeable to the roentgen ray. Moreover, it is hidden by the normal shadows of the bronchial walls and hilum structures, and as the bronchus affected is not yet completely plugged or stenosed, the atelectasis distal to the obstruction (which is of greatest significance in the diagnosis of lung tumors) is rarely sufficiently marked to cast the distinctive shadow on the film. It is in such cases that physical examination of the chest may clearly point to an endobronchial tumor and bronchoscopy will clinch the diagnosis long before the roentgen ray will show pathologic densities. The following case report is one of many illustrating this point:

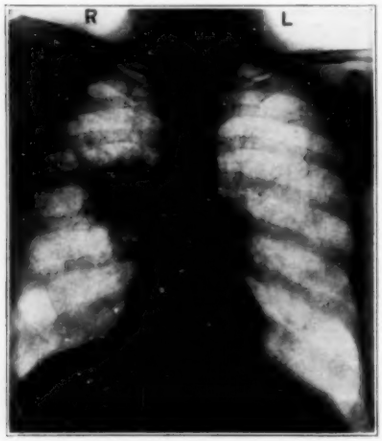

Fig. 3.—Primary lung tumor of the right hilum extending along the bronchial arborization, often called lymphangitis carcinomatosa.

REPORT OF CASE

F. B., a man, aged 41, an Austrian barber, whose family and previous personal history were irrelevant, was first seen, Sept. 7, 1927, at which time he stated that he had been well until the previous Christmas, when he became aware of dyspnea on slight exertion. Expectoration was scanty and only occasionally blood streaked. He lost 20 pounds (9 Kg.) in six months and weighed 102 pounds (46 Kg.) on the day of examination. Hoarseness developed in July and difficulty in swallowing solid food in August, 1927.

The patient was undernourished, of short stature, and apparently slightly anemic. The supraclavicular and axillary glands were not palpable. There was questionable respiratory lagging of the right side of the chest. Percussion notes were normal throughout. There was a prolonged expiratory murmur of asthmatoid type with sibilant râles on the right side, most numerous at the upper half of the chest. The left vocal cord was immobile. The blood pressure was 108 systolic and 80 diastolic.

Laboratory observations did not show anything abnormal in the urine. The sputum examination failed to disclose tubercle bacilli. The hemoglobin was 75 per cent. The red blood cells numbered 4,290,000, the white blood cells, 8,400; polymorphonuclears, 77 per cent; lymphocytes, 23 per cent. The Wassermann reaction of the blood was negative. Fluoroscopy and a chest film (fig. 1) were essentially negative. A diagnosis of primary carcinoma of the right bronchus was made but the patient refused hospitalization for further study.

He reported three weeks later with an aggravation of all previous complaints. At this time fluoroscopy and x-ray examination (fig. 2) disclosed a very dense homogeneous shadow (atelectasis) occupying the upper four fifths of the right side of the chest; the trachea and mediastinal organs were pulled to the right, and the right leaf of the diaphragm was moderately elevated. He was admitted to the Mount Sinai Hospital, where, October 13, Dr. Yankauer removed a piece of tissue bronchoscopically which showed columnar cell carcinoma. Deep x-ray therapy was of no avail and he died, November 3, with signs of tracheo-esophageal fistula.

HILAR TUMORS

The diagnostic situation is different in the hilar type of tumors. Here, as in most early mediastinal tumors, physical observations are indefinite and often misleading and the roentgen ray offers the only reliable means of arriving at a correct diagnosis. By far the larger number of these tumors are endobronchial growths which have extended through the wall of the bronchus and infiltrated the tissues around the hilum. They follow along the bronchial arborization and lymphatic vessel in irregular processes, and are sometimes called "lymphangitis carcinomatosa." In such cases there may occasionally be seen small nodules, not unlike those seen in certain forms of tuberculosis and pneumonokoniosis, along the perivascular ramifications ahead of the main hilar tumor mass. Very few reliable clinicians have been able to discover such tumors on the basis of the physical signs alone for the reason that with the bronchus not effectively plugged no atelectasis of the lobe supplied has taken place, and without atelectatic collapse characteristic physical signs are conspicuous by their absence.

LOBAR TUMORS

Topographically, lung tumors of the lobar type simulate advanced fibroid phthisis in that both are most commonly found in the upper lobes. It will be remembered, however, that advanced tuberculous lesions are most often bilateral, while primary lung tumors are unilateral and rarely matastasize to the contralateral lung in the early stage of the disease. Whether the lobar appearance of the tumor mass is due to actual extensive lobar invasion or marked atelectasis resulting from a small endobronchial tumor plugging the supplying bronchus is beyond the scope of this presentation. It is sufficient to mention that when the trachea and mediastinal organs are displaced or, rather, pulled toward the lesion the chances are that the changes are atelectatic. On the other hand, when the mediastinal contents are displaced to the contralateral side there is most probably a massive tumor invasion.

In the lobar type of tumor there can occasionally be seen definite pencil-like areas of rarefaction radiating in glove shaded fashion from the hilum to the periphery. These appear distal to a compressed or obstructed bronchus and are probably dilated bronchi.

Fig. 4.—Primary neoplasm of the right upper lobe centrally located giving few physical signs.

The sharp line of supposed interlobar demarcation in cases of pulmonary neoplasm is not due to interlobar thickening, as seen in pulmonary tuberculosis, but to the difference in densities of the atelectatic and the adjacent normally inflated lobe.

Tumors of the lobar type involving the lower lobes must be differentiated from pleural effusion, thickened pleura and interstitial pneumonia with and without bronchiectasis. In inflammatory effusions there is a history of acute onset, pain and fever. A thick pleura is most often preceded by old effusion and by a long history pointing to pulmonary tuberculosis, influenza or pneumonia. In the case of tuberculosis, apical signs are not difficult to find. Moreover, in chronic pleurisy

of tuberculous etiology the hemithorax involved is definitely shrunken and mediastinal contents markedly displaced to the affected side. The pulmonary retraction causes a marked ascent of the homolateral diaphragm, the heart is nearer the chest wall, and the apex is markedly displaced. All these are rarely seen in neoplastic conditions. In doubtful tumor cases, films taken in oblique positions will disclose the abnormal densities nearer one aspect of the chest, while in cases of effusion (unless localized) and thickened pleura the abnormal density involves the anterior as well as the posterior aspect of the hemithorax almost to the same extent.

Fig. 5.—Lateral view of the right upper lobe showing its central location.

Fig. 6.—Bronchography in a case of tumor of the right lower lobe: The shadow cast by the iodized oil does not extend to the base of the right lung, probably because of obstructed bronchus.

Chronic interstitial pneumonia may simulate a malignant condition of the lower lobe very closely both on physical and on roentgenologic examination. The long history of cough and expectoration, often dating back to a pneumonia or an empyema in childhood, and the general well being of the patient in spite of extensive signs in the chest are of great help in the differential diagnosis. When the pathologic process has advanced so far as to cause bronchiectasis, definite symptoms and signs will denote its presence and bronchography with iodized oil injection may confirm the diagnosis. The iodized oil will reach the most dependent parts of the bronchi to cast a characteristic shadow in bronchiectasis but will be blocked high up in the course of the bronchus when it is stenosed or plugged by tumor tissue. Moreover, advanced bronchiectasis, even though engendered by an interstitial pneumonia in one lung, soon becomes a bilateral disease in contradistinction to a primary malignant growth, which is virtually unilateral.

Among the lobar types of neoplasm may be mentioned those lung tumors which because of their origin near the central portion of the lung give no dependable signs and few symptoms. Whether they arise from alveolar or bronchial epithelium, they are surrounded by sufficient lung tissue to defy detection by percussion and auscultation. The roentgen ray alone can offer evidence of their existence and a lateral view will show these tumors to be situated practically in the center of the chest in their early stage of development.

Fig. 7.—Large cancerous effusion on the right.

Fig. 8.—Diagnostic pneumothorax discloses a tumor mass at the upper lobe. The lower and middle lobe were collapsed by air.

EXCAVATING FORM OF TUMOR

The excavating form of a primary pulmonary malignant growth simulates abscess or gangrene of the lung. It is the least common of all primary neoplasms and offers great difficulty in diagnosis. Here the semeiology is of greater importance than either the roentgen ray or the physical observations. In pulmonary abscess a known etiologic factor is often found, such as aspiration of a foreign body, a recent tonsillectomy, nasal operation, dental extraction or, indeed, a pneumonic process. In excavating cancerous disease there is no such history but the patient has often complained of cough, expectoration and streaked sputum for months, and suddenly chills, fever, sweat and fetid sputum make their appearance. The search for cancer cells in the sputum will at times clinch the diagnosis, but we are less likely to miss pulmonary tumor if we only keep in mind the fact that apparently spontaneous localized empyemas and pulmonary abscesses in the elderly patient are frequently due to hidden malignant neoplasms.

PLEURAL FORM

Roentgenologically, there are three stages in the pleural type of malignant condition. This has been well brought out by Wessler and Jaches.[5] These stages are: (1) thickening, in which one sees a dense homogeneous shadow in the axillary zone; (2) effusion, and (3) invasion of lung tissue after effusion has been absorbed or aspirated.

When thickening occurs it may be easily missed roentgenographically, but the clinical observations are very suggestive. Pain as a rule is intense and there is a dry, irritating cough. These symptoms, together with early flatness on percussion, are a dependable diagnostic triad.

When an effusion supervenes, the intense pain is rarely relieved to the extent seen in tuberculous pleurisies. Nor is the dyspnea relieved by repeated aspirations. Barjon,[6] Assmann[7] and Staehelin[8] believe that there is no pathognomonic roentgen-ray picture of cancer of the pleura. I may add, parenthetically, that

5. Wessler and Jaches: Clinical Roentgenology of Diseases of the Chest, 1923, p. 390.
6. Barjon: Etude clinique et radiologique du cancer mediastinopleuropulmonaire, J. de radiol. & d'electrol. **5**: 241 (June) 1921.
7. Assmann, H.: Zur Frage der Pathogenese und sur Klinik des Bronchialkrebses, Med. Klin. **20**: 108 (Jan. 27) 1924.

neither percussion nor auscultation reveals signs particularly diagnostic of cancerous effusions. Some observers refer to a peculiar flatness which can be elicited from the base to the very apex of the side involved with neoplastic disease, but similar observations in tuberculous pleurisies are not uncommon in the experience of well trained clinicians. Moreover, the extent of mediastinal displacement in malignant effusions does not differ appreciably from the displacement seen in tuberculous effusion in patients of the same age group. However, the mere occurrence of spontaneous effusion in patients of cancer age is in itself sufficient cause to warrant careful investigation. This holds good regardless of whether the exploring needle produces serous, serosanguineous or purulent exudate. I have seen serous effusions turn sanguineous after many aspirations, and in three of my patients a sanguineous effusion in time became light amber. In one case in which two localized effusions coexisted, aspiration in the sixth interspace in the midaxillary line disclosed clear amber fluid, while sanguineous fluid was obtained on aspiration in the fourth space.

Localized empyemas secondary to neoplastic degeneration are not uncommon, and in two of my patients operation was performed before the true nature of the trouble was definitely ascertained. In one a supposed interlobar empyema proved to be a large degenerated primary neoplasm. In the other, a primary left lower lobe neoplasm was complicated by localized empyema.

A method that deserves wider application in the diagnosis of pleuropulmonary malignant growths in the presence of an effusion is the one successfully demonstrated by Brauer [8] in 1912 and later by Schroeder.[9] Brauer aspirates as much of the pleural effusion as is consistent with safety and inflates the pleural cavity with nitrogen gas, using the usual pneumothorax refill technic. The pneumothorax created provides a fine contrast medium and often the tumor is sharply outlined on a roentgenogram taken immediately after the inflation. This procedure has proved of great value to me for many years.

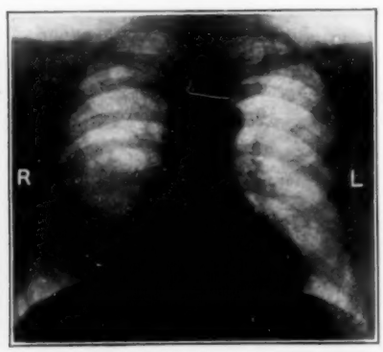

Fig. 9.—Primary pleural tumor on the right.

SUMMARY

1. The roentgen ray is of great value to the clinician in the diagnosis of primary pulmonary malignant conditions when he is acquainted with the type of evidence it has to offer.

2. In early cases, tumors near the hilum and those that spread along the bronchial arborization cannot be definitely diagnosticated without the x-rays.

3. Early bronchogenic tumors which have not grown large enough to obstruct the bronchus and flat pleural tumors may be missed roentgenologically when physical observations may point to their existence.

4. Central tumors, regardless of their point of origin, are visible roentgenologically long before other methods of examination will suggest their presence.

5. In the presence of large effusions, primary lung tumors cannot be diagnosticated by means of the roentgen ray unless the fluid is aspirated and a diagnostic pneumothorax induced for contrast purposes.

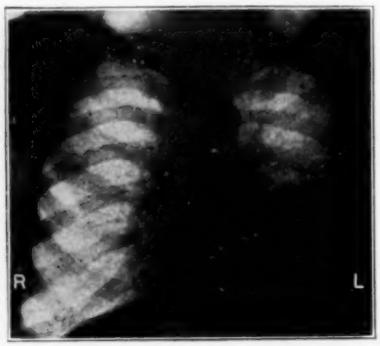

Fig. 10.—Localized empyema operated on secondary to the tumor of the left lower lobe.

6. Spontaneous free or interlobar empyemas and pulmonary abscesses not of metapneumonic origin when they occur in persons past middle life are in themselves suggestive of a possible malignant condition regardless of equivocal x-ray observations.

7. In difficult cases films in the oblique positions, bronchography with iodized oil and particularly early bronchoscopy must be resorted to for a correct diagnosis.

305 West Eighty-Sixth Street.

8. Brauer, L.: Aerztlicher Verein zu Hamburg, May 7, 1912; München. med. Wchnschr. **59**: 1192, 1912.

9. Schroeder, G.: Der kunstlicher Pneumothorax als diagnostisches Hilfsmittel zur besseren Erkennung von Lungentumoren, Inst. Centralblatt f. d. Ges. Tuberc. Forschung **10**: 354, 1916.

COMPRESSION FRACTURE OF THE VERTEBRAE

SUGGESTIONS AS TO TREATMENT *

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Compression fracture of the body of the vertebra has been generally recognized for only a short time. Until comparatively recently, lateral views of the spine were not obtained, and therefore up to that time the injury was generally overlooked. Considering how recent is our knowledge, it is not to be wondered at that our ideas in regard to treatment have not clearly crystallized. It is my hope, however, that this paper may bring out a certain amount of discussion that will help all of us in such a way that we may be able to treat these patients with a greater degree of certainty and be able more nearly to standardize the procedure.

The material for this paper was taken from 131 cases of compression fracture of the body of the vertebra. The vast majority of these cases have come under the state industrial act. A goodly number of the patients have been treated by me, and a larger number I have merely examined at the request of the industrial insurance department. In addition to the 131 patients whom I have either treated or had a chance to examine in my office, I have also gone through the files in the industrial insurance department and obtained data on seventy-five other cases.

The mechanism of the production of a compression fracture of the body of the vertebra is well known. Suffice it to say that it occurs as the result of the spine being forcibly flexed. Incidentally, it should be noted that the fracture may occur as a result of what is apparently a rather trivial injury. For example, I have one

* Read before the Section on Orthopedic Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

patient, a rather heavy set man, who slipped on a greasy floor and came down with a good deal of force on the buttocks, producing a marked compression fracture of the second lumbar vertebra.

The diagnosis is generally an easy one, and is made almost entirely by means of roentgenograms. A straight anteroposterior view is not enough to establish a diagnosis. There should be either a good stereoscopic anteroposterior view or a clear lateral view. Many lateral views that I have seen have been insufficient to establish a diagnosis. In the case of the patient to whom I have just referred, it was almost two years before a diagnosis was made because of the fact that he was a very heavy man and it was difficult to get a good lateral view. When a good lateral view was finally obtained, the compression of the second lumbar vertebra was easily seen.

In spite of the fact that the diagnosis is rather easy, it is all too common to have cases overlooked for a long period of time. In this series of cases, a number of the patients went for two years before a diagnosis was made, and it is a common thing to have the condition drag on for a number of weeks, or a number of months, before the correct diagnosis is made. Failure to make a correct diagnosis, shortly after the injury, is probably the most potent factor concerned in the poor results obtained. It is my feeling that if any patient has an injury which could possibly have resulted in a compression fracture of the body of the vertebrae that diagnosis should be made, unless the condition can be proved to be something else. Given a patient who has had an injury that could have resulted in a compression fracture, it would seem to me logical that he should be treated for a suspected compression fracture, even though the roentgenogram did not definitely confirm the diagnosis. It should be borne in mind that compression fractures may be very slight, so slight as not to be distinguishable from some of the cases of arthritis. Also, it should be borne in mind that the patient with an arthritis can readily sustain a compression fracture.

What is the proper treatment for a compression fracture? This question certainly cannot be answered easily. The human element enters into every case and must be a very large factor in enabling one to outline a correct line of treatment. It seems reasonable to suppose that a man who is doing hard labor would require a little different line of treatment from a man who is pursuing a sedentary occupation. Also, the question of the age of the patient must always be considered and, with this, the various disabilities that the ordinary person is heir to. My experience with patients with compression fractures, who came to me as private patients, would rather lead me to feel that the treatment may be fairly well standardized. On the other hand, my experience with the industrial cases would indicate that, regardless of treatment, the results were anything but good. It seems that we are almost compelled to divide these patients into two classes: those who come under the state industrial act, and those who come to the physician as private patients. In the state industrial case, there is a psychologic element which enters in and which is always to be considered. Private patients are generally those who are not doing the hardest kind of labor but who are leading a rather sedentary life, and therefore the results obtained in private patients may not be obtained at all in the treatment of the state industrial patient. The private patient is always anxious to get well. For financial reasons, the state patient may prefer to have his disability drag on as long as possible.

In the list of state industrial patients whom I have examined or treated, together with the seventy-five patients whose records I have examined, only a few—not more than five—were returned to hard labor with-

Fig. 1 (case 1).—Compression and comminution of third lumbar vertebra. Fusion of second, third and fourth vertebrae is definitely indicated and should be done early.

Fig. 2 (case 2).—Compression and comminution of first lumbar vertebra. Fusion of the twelfth dorsal and the first and second lumbar vertebrae is indicated.

Fig. 3 (case 3).—Marked compression of the twelfth dorsal vertebra. Fusion of the eleventh and twelfth dorsal vertebrae and the first lumbar is probably indicated.

out a considerable percentage of disability, the figures ranging all the way from 10 per cent up. This statement, however, does not necessarily mean that all the industrial patients have a large percentage of disability. I must admit, however, that the state patients whom I have treated generally have not recovered without considerable disability. Quite a number of patients whom I have examined for the state, and a rather small number of the same type whom I have had a chance to treat myself, have had bone graft operations. Of this group, not one patient has recovered without a large percentage of disability and few, if any, have been much improved following the fusion operation on the spine. A few have had less pain but none are able to do hard labor.

Fig. 4 (case 4).—Compression of third and sixth dorsal vertebrae; type in which fusion is not indicated. The patient recovered without disability and without treatment.

On the other hand, none of my private patients have been operated on, and the results have been infinitely better, most of them returning to their usual occupation after having been treated merely by rest in bed in addition to some type of support during the period of convalescence. However, it should be remembered that the latter group is generally not engaged in hard labor.

One private patient, a university boy, who, while working in the gymnasium, sustained a compression of the third and sixth dorsal vertebrae, was not seriously disabled and consequently did not quit work, and the correct diagnosis was not made until after five months had elapsed. I then examined him because of a rather trivial amount of pain in the neighborhood of the right scapula. The diagnosis was accidentally made by means of a roentgenogram. This young man had not received any treatment and none was given, even after the diagnosis was established. He is completely well, and does the heaviest kind of labor during the vacation period.

In another instance I made the diagnosis accidentally, by means of a roentgenogram, at least fifteen years after the original injury.

The patient had sustained a severe crushing of the first lumbar vertebrae, probably with cord symptoms. In one year from the date of the injury he began hard labor and continued at this work up to the time the diagnosis was made, fourteen years later. He did not have any treatment other than rest in bed and yet he made a perfect recovery.

Two cases cannot prove much, but it is significant that these two cases, both untreated, represent the most perfect recoveries I have seen.

The first step in the treatment is certainly the making of an accurate diagnosis. If a diagnosis is not made for a great many months, or for a year or two, obviously there is no treatment that is likely to be definitely satisfactory. Given a compression fracture of the body of the vertebra, it would seem most logical that the proper treatment for that patient should be rest in bed on a frame of some type, preferably a convex frame. The best frame I know of for this particular type of case is what is known as the Langworthy frame, but any frame that is convex and that will keep the patient reasonably quiet, and which is so constructed that he can easily be cared for, will be perfectly satisfactory. In lieu of a frame, it is quite feasible to keep a patient in a posterior plaster shell but, if so, the shell must extend from the head down to the knees. Obviously, it is very much easier to treat a patient on a frame than to treat him on a shell, although either line of treatment is quite satisfactory. The application of the ordinary plaster jacket in addition to recumbency in bed is in my opinion entirely unsatisfactory, and certainly treatment by a plaster support or brace, allowing the patient to be up immediately following the injury, is a great mistake. Complete healing of a compression fracture is a thing that must take a great deal of time, probably not less than from six to eight months.

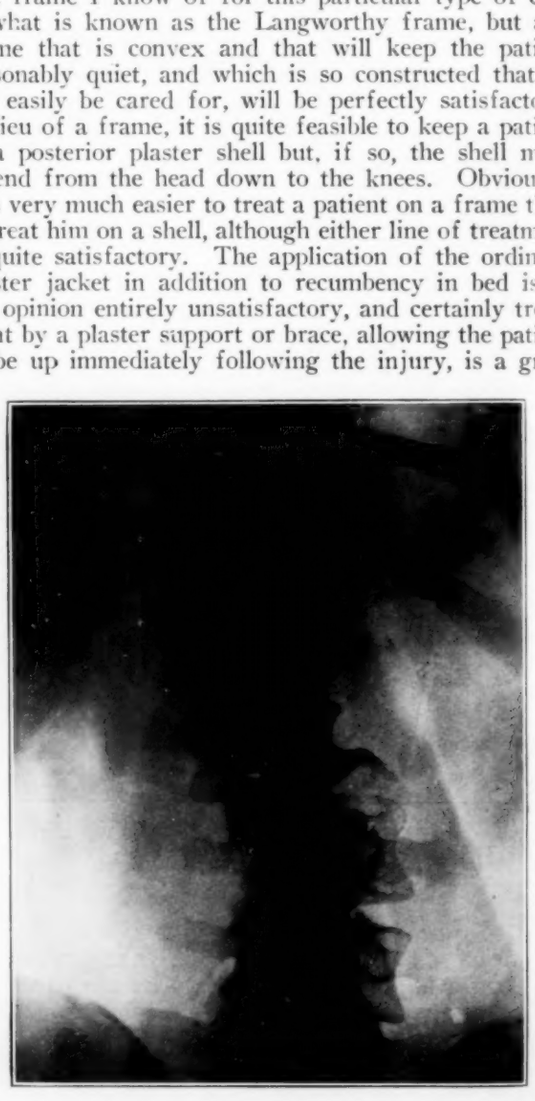

Fig. 5 (case 5).—Compression and displacement of second and third lumbar vertebra. Fusion of the second, third and fourth vertebrae is obviously indicated.

Dr. Frank Patterson of Vancouver has demonstrated rather conclusively that the healing which takes place in the body of a vertebra is very much slower than it is in the case of a fracture of the tibia. Therefore, it seems logical that a rather long period of immobiliza-

tion should be resorted to. I feel that these patients should be kept in bed for at least three months and, following this, they should have a brace that is well fitting. I do not believe that the ordinary plaster jacket is sufficient to hold these patients as they should be held. It seems reasonable that the patient with a compression fracture should be kept in some type of support for at least a year following the injury.

While there is not the slightest question that a few of these patients will recover without treatment, it certainly should not be laid down as a rule that treatment should not be used. On the other hand, the vast majority of them, regardless of treatment, will not make a complete recovery.

The question of the value of a fusion type of operation is constantly coming up. The value of any operative procedure must be judged purely on the basis of the good it does the patient. The fact that the spine can be fused cannot be disputed. Certainly a spine may be fused by the Hibbs method or a modification of the Hibbs method and, less effectively, by the so-called Albee method. The question of one's ability to perform a successful operation, from a mechanical and surgical point of view, does not enter. The question is, How much good does it do the patient?

Not a single patient that I have examined for the state industrial department, and not one of the patients whose files I examined and on whom bone graft operations of any type had been done, was cured. Some of them were better, some had less disability than before, many had less pain, but all had a very large percentage of disability. I am beginning to believe that a fusion operation must be done early, if any great good is expected to come from the procedure.

SUMMARY

1. This paper is based on a study of 131 cases, plus the knowledge gained from examining the records in seventy-five other cases.

2. Early diagnosis is the most important step in the treatment.

3. Rest in bed for three months, followed by the wearing of a well fitting brace for at least one year, is essential.

4. Fusion operations certainly have some place in the treatment, particularly if performed early, but their value is greatly overestimated, and they should by no means be a routine procedure.

5. Industrial insurance patients form a different group from private patients for two reasons: (*a*) the psychologic element is apt to be wrong, and (*b*) our private patients are not likely to belong to the class that must go back to hard labor.

Stimson Building.

ABSTRACT OF DISCUSSION

DR. R. M. SCHAUFFLER, Kansas City, Mo.: I saw a case recently in which there was not the ordinary jack-knifing when the body was bent over, but a quick temporary compression and coming up again of the spine. While standing squarely on his feet at the side of a building holding a rope, the patient was hit on the top of the head with a block of wood falling plumb, like the weight of an old-fashioned clock. He had an extensive depressed fracture exactly on the top of his head over the lateral sinus. The man watching him said that the wood bounced off his head and he stood for an instant with his hand still on the rope. Then he fell limp and unconscious and was brought to the hospital in that state. A large piece of the skull was raised and he regained consciousness soon after the operation. He made no complaint with regard to his back until the end of the third week, the first day he sat up. Then he complained of a backache and of some rather vague, irregularly placed, girdle pains on two levels. The roentgenogram of his spine showed that the eighth dorsal vertebra was cracked, and the tenth dorsal vertebra, in the anteroposterior view, was compressed laterally into a moderate V; the eleventh dorsal had one corner broken; the twelfth dorsal was compressed from before backward in the ordinary V shaped vertebra, and the second lumbar vertebra was broken in two and presented a typical bat wing appearance—yet the man did not complain of any symptoms until he sat up. After the plaster cast was applied with a heavy extension, the patient lying on a canvas strip, he did not make any further complaint.

DR. J. T. O'FERRALL, New Orleans: All of the patients that I have treated have recovered without paralysis and without kyphosis or other deformity. The question in my mind is, Should we strive for too much hyperextension in the spine? Are we not, in some instances, breaking up a so-called impaction, which means that with extreme hyperextension there is more possibility of pressure on the spinal cord and some paralysis? It seemed to me that the pictures Dr. Eikenbary showed dealt very largely with more of a comminuted fracture of the bodies of the vertebrae than with a compression fracture. They are all due to compression trauma, but many of the fractures he showed seemed to me to be comminuted rather than compressed. Might we not produce too much hyperextension and thus break up an impaction?

DR. C. F. EIKENBARY, Seattle: The degree of convexity of the frame that I use in these cases is a great deal less than I use in treating the ordinary case of tuberculosis of the spine with kyphosis. I do not have a sharp angle but a very slight curve, and I do not always use a convex frame. I occasionally use just the ordinary flat frame, but generally, I believe, the patients are better off with a slight degree of convexity. I think that if I had used the word slight I would have expressed myself better than if I had used the word convex.

THE PATHOLOGY OF VESICAL NEOPLASMS

ITS EVALUATION IN DIAGNOSIS AND PROGNOSIS*

PAUL W. ASCHNER, M.D.
NEW YORK

Tumors of the urinary bladder present a frequent and a difficult problem to the urologist. This is evidenced by the ever growing series of cases reported from the larger clinics both in this country and abroad. The ultimate object of analyzing groups of these cases is to determine the results of the various forms of therapy employed, whether physical and chemical agents, surgery, or combinations of the two. For the individual patient, one aims to be guided by the deductions from such analyses in deciding what plan of treatment offers the best chance of cure. When we discuss the modes of therapy at our disposal we understand one another reasonably well. When we attempt, however, to indicate the nature of the disease process from which the patient is suffering, we are sometimes on common ground but frequently we are far apart and seem to be conversing in foreign tongues. The cause of this misunderstanding is in a measure the complexity of the underlying pathologic problem, but in much greater degree the inaccurate and divergent terminology employed in the classification of the lesions not only by clinicians but by pathologists as well. That serious confusion exists is apparent, for one observes a frequent discrepancy between the urologist's and the

* From the Surgical Service of Dr. Edwin Beer and the Laboratories of the Mount Sinai Hospital.
* Read before the Section on Urology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.

pathologist's interpretation of the individual patient's malady. Thus, in some series of cases the former has included in the group with carcinoma patients whom the pathologist of the same clinic on the basis of removed tumor tissue, has reported as having papilloma.

This bespeaks a certain lack of confidence on the part of the clinician in his colleague's interpretation of

Fig. 1.—Papilloma I: biopsy specimen, reduced from a photomicrograph with a magnification of 75 diameters.

the histology of the tumor. Although many urologists admit, as Geraghty did, their inability to differentiate benign and malignant papillary growths by cystoscopic inspection, they nevertheless choose to dispense with the biopsy, the high court of appeal in the case of doubtful tumors elsewhere in the body. They prefer to be guided by a therapeutic test,[1] the mode of response to fulguration (electrodesiccation with the Oudin current, or electrocoagulation with the d'Arsonval current).

The following factors seem responsible for vesical neoplasms being regarded as apart from tumors elsewhere in the body and not amenable to the usual mode of classification: 1. Benign papillomas tend to implant themselves in other parts of the bladder, and in the suprapubic wound after open operation. 2. Patients with benign papillomas tend to develop new tumors after the original one has been destroyed. 3. Carcinoma may subsequently appear in a bladder previously cured of papilloma. 4. Patients with papillomatosis may develop frank carcinoma or metastatic phenomena with a malignant clinical course. 5. Rare cases of papilloma with typical benign cell structure show infiltration of the bladder wall, the so-called infiltrating papilloma. Rokitansky[2] maintained that all papillary bladder tumors are malignant (Zottenkrebs). 6. The introduction of the term malignant papilloma has caused much misunderstanding. It connotes a papillary tumor the cells of which are partly or entirely atypical but do not invade the stroma or base of the growth. It corresponds in part to the changed papilloma of Buerger,[3] which, however, he rightly included among the papillary carcinomas. 7. As a corollary of the preceding, only tumors which present infiltration of the bladder wall are classed as papillary carcinomas. 8. The classification of Broders,[4] according to the proportion of undifferentiated and differentiated cells in the tumors, all being looked on as potentially malignant, would seem to be a reversion to the views of Rokitansky. Gross pathologic changes and invasive properties are not considered in this system. The cell type is the sole criterion.

In the consideration of neoplastic processes in other parts of the body analogous factors are encountered, but the same interpretation is not given to them. Multiplicity is surely not considered a sign of malignancy. The development of sarcoma in one of the multiple neurofibromas of von Recklinghausen's disease or of carcinoma in a case of gastric or colonic polyposis does not make the original condition a malignant one. Adenoma malignum of the uterus, although its cells are benign in type, is nevertheless grouped with the adenocarcinomas because of its infiltrating properties. A papillary adenocarcinoma of the uterus, stomach or rectum, on the other hand, is not called "malignant adenoma" merely because it does not invade the muscularis. Invasion and metastasis are conclusive evidences of malignancy in tumors; cytology is not the sole criterion.

TABLE 1.—*Classification of Vesical Neoplasms*

1. Primary Epithelial Tumors:
   - A. Papillary (fibro-epithelial) tumors:
     - I. Papilloma (benign).
     - II. Papillary carcinoma (malignant):
       - Noninfiltrating.
       - Infiltrating.
   - B. Nonpapillary (flat) epithelial tumors:
     - Adenoma (benign).
     - III. Carcinoma (malignant).
2. Primary Mesoblastic Tumors:
   - A. Benign.
   - B. Malignant (sarcoma).
3. Embryonal Tumors.
4. Secondary Tumors.

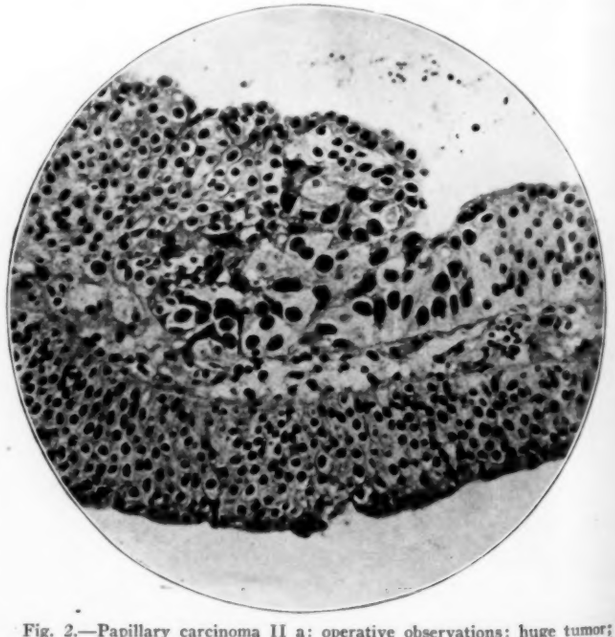

Fig. 2.—Papillary carcinoma II a: operative observations: huge tumor; sessile; not infiltrating; scattered areas of large atypical cells; reduced from a photomicrograph with a magnification of 275 diameters.

1. Geraghty, J. T.: Surg. Gynec. Obst. **21**: 150, 1915; J. Urol. **7**: 33 (May) 1922. Keyes, E. L.: Surg. Gynec. Obst. **21**: 169, 1915.
2. Rokitansky, C.: Lehrbuch der pathologischen Anatomie, ed. 3, Vienna **3**, 1861.
3. Buerger, L.: Surg. Gynec. Obst. **21**: 179, 1915.
4. Broders, A. C.: Ann. Surg. **75**: 574 (May) 1922.

There is desired, therefore, a classification of vesical neoplasms which is in accord with the general principles of tumor terminology and which will meet the requirements of the clinician in that it takes cognizance of gross as well as microscopic features. Such is, I believe, the following classification.

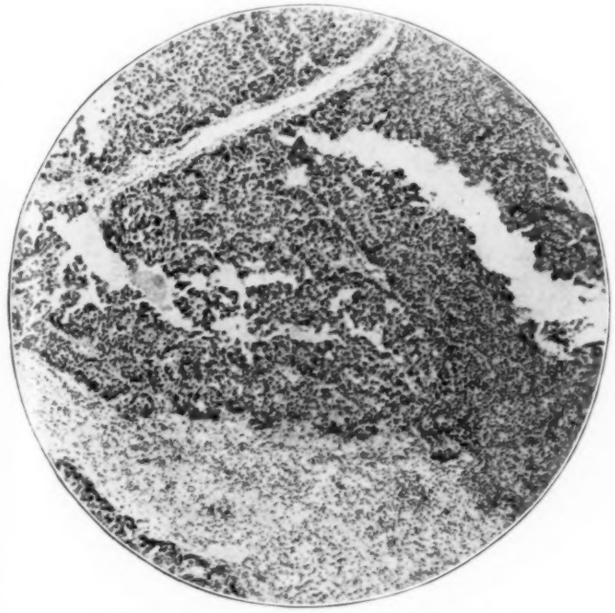

Fig. 3.—Papillary carcinoma II a: areas of atypical cells with irregular deeply stained nuclei; reduced from a photomicrograph with a magnification of 75 diameters.

The common varieties of vesical tumors are: 1, papilloma; II, papillary carcinoma, and III, nonpapillary carcinoma. This simple classification was used by the late Dr. F. S. Mandelbaum [5] in his contribution of 1907. In a study of thirty-seven cases he confirmed the belief that papillary carcinoma may be primary or may develop from a preexisting benign papilloma. Buerger of the same laboratories reported a series of 113 cases. He made a more detailed study of the histologic criteria on which the diagnosis of "changed papilloma" could be based. These changes were found not only in the deeper parts of the growth but also in those portions accessible to cystoscopic removal of tissue for diagnosis. Of fifty-two cases of carcinoma, 25 per cent fell into this category. On the basis of these observations, it became more and more customary to remove fragments of tumor tissue cystoscopically for microscopic study, and to be guided considerably thereby in meeting the therapeutic problem which each case presented.

TABLE 2.—*The Common Varieties of Vesical Neoplasms*

I. Papilloma (benign). Cell uniformity and typism.		
Pedunculated	Single.	
	Multiple.	
Sessile.....	Papillomatosis.	
II. Papillary Carcinoma.		
Noninfiltrating ...	II. a. Scattered areas of somewhat atypical cells.	
	II. b. More diffuse and more marked atypism.	
Infiltrating	Cells of benign type (rare) II c.	
	Cells anaplastic	II d. Stroma or stalk invasion.
		II e. Submucosal base invasion.
		II f. Muscularis and perivesical invasion.
III. Nonpapillary (flat) Carcinoma.		
a. Fibrocarcinoma (scirrhus).		
b. Medullary.		
c. Adenocarcinoma.		
d. Squamous.		
e. Hornifying.		

TECHNIC OF THE BIOPSY

The tissue is best procured with the punch forceps through an operating cystoscope. Young's cystoscopic rongeur or a snare may be employed to secure larger pieces. Fragments should be removed from different parts of the tumor, especially more solid looking parts, for the malignant changes may be confined to a limited area. If several tumors are present, several should be examined, particularly the sessile, less fluffy type of growth. If partly necrotic, the viable periphery should be investigated.

Bits of tissue which adhere to the fulgurating electrode are not so reliable, as the coagulating current affects the morphology very materially. The biopsy should be performed first and the high frequency current then applied to the tumor, thus sealing off the traumatized areas. Thorough irrigation to remove liberated cells should follow.

When a benign papilloma has responded to endovesical therapy, a specimen should be removed from the base of the tumor or from the resulting ulcer, for only thus may the most treacherous form of papillary carcinoma be recognized in time, namely, the infiltrating tumor, the cells of which appear benign even when they invade the bladder wall, and differ in no detectable manner from those of the ordinary papilloma.

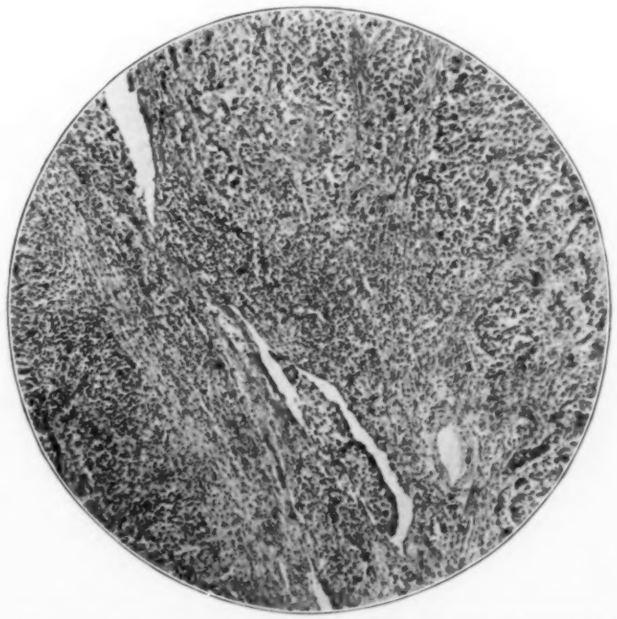

Fig. 4.—Operative specimen, same patient as in figure 3: stroma and stalk invasion; tumor cells in lymphatic space; papillary carcinoma II d: illustrates inability to judge the extent of malignancy from biopsy alone; reduced from a photomicrograph with a magnification of 75 diameters.

The fragments are fixed in formaldehyde at once and are prepared by the paraffin method. Hematoxylin, hematoxylin-eosin, and occasionally van Gieson stains are employed.

5. Mandelbaum, F. S.: Surg. Gynec. Obst. 5: 315. 1907.

DESCRIPTION OF THE VARIOUS TUMORS

I. *Papilloma.*—The ordinary variety of this growth is a soft, shaggy, villous tumor springing from the bladder mucosa by a well defined pedicle. A delicate connective tissue core continuous with the submucosa of the bladder and containing blood vessels forms the skeleton. Surrounding the core and its delicate branches is an investment of epithelium continuous with the epithelium of the bladder mucosa. The cells are arranged in a radial palisade manner at right angles to the core, and are demarcated from its stroma by a well defined basement membrane. The epithelium may be few or many layers deep. As the tumor grows, adjacent villi fuse. The fusion may go on to produce an almost solid epithelial tumor with little stroma.

A number of stalks growing simultaneously from the bladder wall and fusing as they grow produce a broad based sessile type of growth, the villi of which are short and rounded. Another form of sessile papilloma appears to be derived by proliferation of the cells lining the glands of von Brunn, and these may be designated as adenopapillomas. Ulceration, necrosis and incrustation occur in papillomas rarely, and then usually after treatment.

The cells of the tumor present a high degree of uniformity in size and shape. The nuclei are elongated and elliptical; they stain rather uniformly and may show mitosis in the deeper layers of actively growing tumors. The cytoplasm of the cell is poorly demarcated from that of its neighbor. The surface cells may show cystic or hydropic degeneration if the growth is subject to trauma by the sphincter vesicae. Inflammatory changes in the stroma may be marked as the result of infection. The basement membrane, however, remains intact and tumor cells do not invade the stalk. In the solid sessile

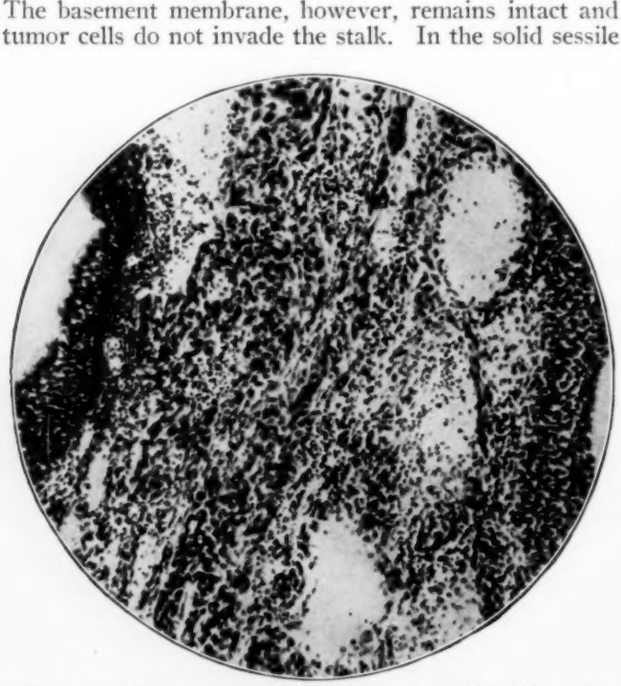

Fig. 5.—Papillary carcinoma II d: stroma of a villus infiltrated by carcinoma cells, which should be compared with the cells clothing the villus; reduced from a photomicrograph with a magnification of 125 diameters.

tumors there is a tendency for the limiting cell membranes to be more prominent and for mitoses to be more frequent.

II. *Papillary Carcinoma.*—Noninfiltrating tumors of this group may be pedunculated or sessile. They are usually indistinguishable cystoscopically or grossly from benign papillomas, from which, in fact, a large percentage probably develop. The cytologic changes which brand the tumor as malignant may be very slight and limited to a small part of the growth, or very marked and present throughout the growth. The changes noted are the presence of large cells with irregular deeply

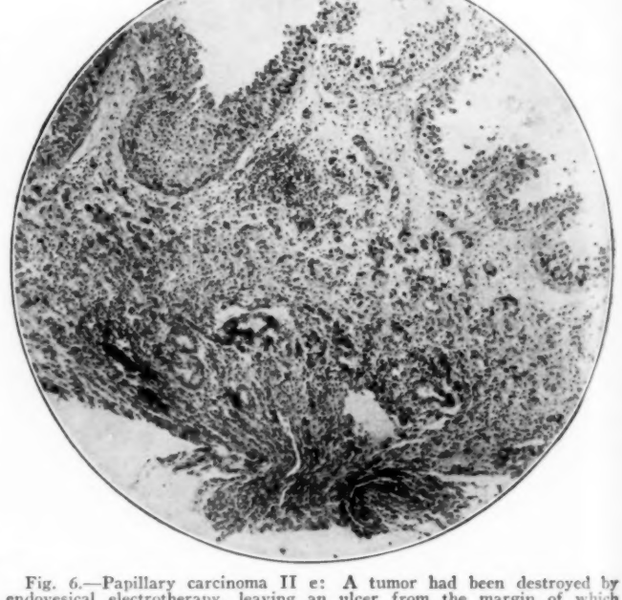

Fig. 6.—Papillary carcinoma II e: A tumor had been destroyed by endovesical electrotherapy, leaving an ulcer from the margin of which this specimen was removed. Note submucous nests of tumor cells. Reduced from a photomicrograph with a magnification of 75 diameters.

staining nuclei, cells with atypical mitoses, pyknotic nuclei or lobulated nuclei, intensification of cell membranes with a tendency toward the squamous type, loss of palisade arrangement and loss of uniformity. The stroma is not invaded and the basement membrane is preserved. Tumor cells, however, may be found in vessels of the stalk or base.

Infiltrating tumors comprise two types. The first is characterized by a cell growth indistinguishable from that of benign papilloma; yet the tumor invades the pedicle, infiltrates the bladder wall and its vessels, and may produce distant metastases. This is the only bladder tumor to which the term "malignant papilloma" may be applied with justification. The second type presents all the cellular aberrations observed in the noninfiltrating tumors, with a more marked tendency to squamous metaplasia. The tumors show invasion of the pedicle, the bladder wall and perivesical tissues. Frequently the papillary portion of the growth almost completely disappears by necrosis and leaves the ulcerated infiltrated base with a few papillary excrescences at the edge.

III. *Nonpapillary Carcinomas.*—These carcinomas are characterized by their tendency to spread downward into the bladder wall and laterally under the normal mucosa. There is often ulceration and necrosis at the center of the growth. They seem to arise from the deeper cells of the mucosa, nests of which are not infrequently seen dipping downward in inflammatory processes, especially at the trigon and vesical neck. The so-called glands of von Brunn and urachal rests may give rise to adenocarcinomas. Leukoplakia may be the forerunner of hornifying squamous cell carcinoma. Scirrhus and medullary varieties also occur.

I have reviewed the slides of every tumor submitted to biopsy or operation at the Mount Sinai Hospital since 1911 and have diagnosed each in accordance with the classification outlined. The clinical information and subsequent course of the patient was then obtained from the data made available by the late results recently compiled by Dr. Beer and his associates.[6] There were

TABLE 3.—*Papilloma Biopsy Reports Confirmed*

Number of Tumors in Bladder	Confirmed by Early Cystoscopic Control	Confirmed by Operative Specimen	Confirmed by Late Cystoscopic Control (1 to 15 Yr.)	Confirmed by Late Letter Control	New Tumors or Recurrences, Benign Only
Single, 56 cases..... Pedunculated, large, 26; pedunculated, small, 25; sessile, 5	29	6	26	1	12 (21 per cent)
Multiple, 25 cases... Pedunculated, large, 7; pedunculated, small, 16; sessile, 2	14	4	9	..	7 (28 per cent)
Papillomatosis, 9 cases	1	5	5	2 1 autopsy 5 years after cure	1 (11 per cent)

two objectives in this study: (1) an evaluation of the biopsy for diagnosis and (2) an evaluation of the pathologic condition for prognosis. In several instances my diagnosis differed from the original one rendered, probably because our criteria for benign papilloma have become progressively stricter and because, conversely, we have learned to attach greater importance to slight cell changes which formerly were either overlooked or underestimated as to their significance.

In table 3 I have summarized ninety cases of papillomas diagnosed at biopsy and confirmed by their

Fig. 7.—Operative specimen: papillary carcinoma II d; cancer cells in blood vessel of stalk; reduced from a photomicrograph with a magnification of 100 diameters.

response to high frequency treatment by the operative specimen and by the late results. New tumors or recurrences were seen in 22 per cent of these patients but they, too, were benign and responded to high frequency treatment.

6. Beer, E.: Am. J. Surg. 4: 113 (Feb.) 1928.

PAPILLOMA REPORTS PROVED INCORRECT

In seven additional cases the biopsy diagnosis of papilloma was proved incorrect by subsequent events:

CASE 1.—R. C. Large single tumor. Few small fragments removed; reported papilloma. Developed spinal metastasis.

Fig. 8.—Papillary carcinoma II f: musculature infiltrated by the tumor; reduced from a photomicrograph with a magnification of 75 diameters.

CASE 2.—H. H. Huge tumor filling bladder. Two biopsies; papilloma. Operation: removed tumor; papillary carcinoma type II a; base not infiltrated.

CASE 3.—J. H. Large sessile tumor. Two biopsies; papilloma. No response to fulguration. Operation: papillary carcinoma II e; atypical areas in depth of tumor; base infiltrated.

CASE 4.—J. C. Two pedunculated paratrigonal tumors, one sessile tumor on posterior wall. One biopsy; papilloma. Died of uremia. Autopsy: two pedunculated tumors, papilloma; sessile tumor, papillary carcinoma II f.

CASE 5.—J. C. Papillomatosis. Exploratory operation; specimen removed, papilloma. Cautery operation, specimen papilloma. Third operation, specimen papillary carcinoma II c.

CASE 6.—H. L. Papillomatosis. Cautery operation: specimens of papilloma. Small recurrences; biopsy; papilloma. Developed tumor of os pubis; biopsy showed transitional cell carcinoma.

CASE 7.—F. Mc L. Papillomatosis. Preoperative biopsy, papilloma. Two operations; specimens of papilloma. Third operation, specimen papillary carcinoma II f.

When the slides of the tissue obtained cystoscopically were reviewed, it was evident that papillary carcinoma should have been suspected in cases 1, 2 and 7. In case 3 there were only a few small deeply situated areas of atypical cells in the operative specimen, but the stroma and base showed infiltration. In case 4 the bladder contained two benign tumors and one malignant tumor, and the biopsy specimen was undoubtedly derived from one of the benign tumors. Cases 5 and 6 illustrate the malignant course which papillomatosis may pursue. The infiltration of the bladder wall may not be detected even at operation. In case 7, carcinoma should have been suspected at the first biopsy and definitely diagnosed at the second biopsy and second operation.

PAPILLOMA WITH SUBSEQUENT CARCINOMA

In four additional cases of papilloma diagnosed at biopsy and confirmed by other facts, carcinoma of the bladder appeared later. Such cases account for the confusion and complexity of the subject.

CASE 8.—S. C. 1914, single papilloma; biopsy; responded to high frequency treatment.

1918, multiple papillomas, confirmed by biopsy and operative specimens.

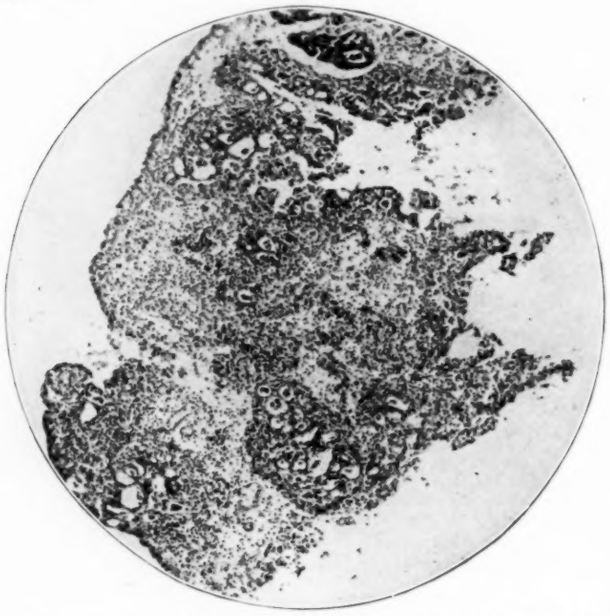

Fig. 9.—Adenocarcinoma III c, arising from von Brunn's glands; reduced from a photomicrograph with a magnification of 75 diameters.

1921, recurrence of three tumors, two yielding to high frequency treatment. Tumor at fundus did not respond. Papillary carcinoma, biopsy and resected tumor II e.

1924, small recurrence, biopsy papilloma, cured by high frequency treatment.

1928, cystoscopy, no evidence of recurrence.

CASE 9.—A. H. 1917, single papilloma; biopsy; responded to high frequency treatment.

1920, recurrence; operation; papillary carcinoma II d.

1921, recurrence of multiple tumors; papillary carcinoma.

Recurrences in 1922 and 1923; death in 1926.

CASE 10.—H. S. 1922, single papilloma; biopsy; responded to high frequency treatment.

1927, recurrence of small tumor at same site; responded to high frequency treatment but left small ulcer; biopsy of latter showed carcinoma.

CASE 11.—R. T. Treated elsewhere for papilloma in 1916 and 1920.

1920, biopsy and operation; papilloma and prostatic abscess.

1925, hematuria; large flat tumor on anterior wall of bladder; biopsy and operation, scirrhus carcinoma III a.

In cases 8 and 11, it seems reasonably certain that the carcinomas arose as primary tumors, independent of the preceding papillomas. In cases 9 and 10, it is possible that the original tumor was one of early carcinoma, although a careful review of the slides does not give any evidence to confirm this view.

SOURCES OF ERROR IN BIOPSY DIAGNOSIS

From what has been said it is evident that a biopsy diagnosis of papilloma may be rendered by the pathologist in some cases of carcinoma of the bladder for the following reasons, unavoidable on his part:

1. There may be insufficient material, or improper material, such as fulgurated tumor tissue.

2. In the rare cases of infiltrating tumors of benign cell type (group II c) the diagnosis cannot be made unless tissue has been removed from the infiltrated base.

3. Coexistence of benign and malignant tumors may be present in the same bladder, material from the benign lesion alone being submitted (as in case 4).

4. The malignant cell changes may be confined to the depth of the tumor inaccessible to biopsy (case 3). Contrary to general belief, this is exceedingly rare.

5. In some cases of papillomatosis it is evident that only a few of the numerous tumors are examined, and a malignant one may readily be missed (cases 5 and 6).

BIOPSY DIAGNOSIS OF CARCINOMA

In examining snippings of vesical tumors removed for diagnosis through the cystoscope, the pathologist should adopt the mental attitude of "guilty until proved innocent." Every fragment available must be examined critically and leisurely—not when one is pressed for time. As experience grows larger and the opportunity to check up the diagnoses increases, one becomes more and more convinced of the significance of slight cellular irregularities, loss of palisade arrangement, tendency to squamous metaplasia, variations in size and shape of the nuclei, pyknosis, prominence of nucleoli, and atypical mitoses. A break in the basement membrane, stroma infiltration by epithelial cells and their presence in the small blood vessels of the core should always be searched for. If the base or the mucosa adjoining the pedicle has been reached by the rongeur forceps, submucous or even muscularis infiltration may be detected. In some instances a positive diagnosis of a malignant condition cannot be made from the first biopsy, but the

Fig. 10.—Squamous cell carcinoma III d: specimen removed from ulcer 1 cm. in diameter; operative specimen showed origin in area of leukoplakia; reduced from a photomicrograph with a magnification of 75 diameters.

pathologist should indicate the suspicion he entertains and should request more material.

Tumors of groups II a, b, c and d are frequently indistinguishable from benign papilloma by cystoscopic inspection alone. The difficulty of diagnosing tumors of type II c, fortunately rare, has already been indicated. The occasional favorable response to high frequency

treatment is no argument for the innocence of the tumor. The case records show how often it has misled the urologist and has delayed his resort to biopsy and adequate treatment of the lesion. In twenty-nine cases in groups II a and b, high frequency alone succeeded in only four cases. In all fairness it must be stated that, except in patients very advanced in years or suffering from constitutional disorders, the biopsy diagnosis of carcinoma has been a signal for us to discontinue this treatment. On the other hand, twelve cases of papillary carcinoma treated by high frequency with apparently good immediate result showed early

TABLE 4.—*Summary of All Cases Studied—Two Hundred and Eighty-Five Cases*

Type of Tumor	Number of Cases	Biopsy Done	Biopsy Confirmed	Biopsy Not Helpful	Operative Deaths	Deaths Due to the Disease	Deaths Due to Other Causes	Number of Cases Followed	Recurrences: Benign	Recurrences: Malignant	Metastasis	Number Arrested	Percentage Arrested
I Papillomas	90												
Single	56	90	90	0	3	0	6	90	20	0	0	87	96
Multiple	25												
Papillomatosis	9												
II Papillary carcinoma	137												
A 13 Single	8												
Multiple	5	12	12	0	0	1	2	9	1	2	1 (omental)	4	44
B 16 Single	14												
Multiple	2	13	13	0	3	2	2	12	0	0	0	5	42
C 6 Single	4												
Multiple	2	0	..	..	1	..	..	2	1 (5 years)	..	..	1	50 (inadequate data)
D 34 Single	30												
Multiple	4	29	29	0	2	12	1	23	1	7	4 (bones, lungs)	2	8
E 18 Single	15												
Multiple	3	13	13	0	1	4	1	14	0	0	2	7	50
F 50 Single	47												
Multiple	3	39	39	0	8	17	3	39	0	7	5 (1 lung, 2 bones)	6	16
III Nonpapillary carcinoma	43												
A 6 Single	37												
B 6 Multiple	5	41	41	0	11	10	1	29	0	8 (3 in scar)	6 (nodes, bones, prostate)	5	17
C 8													
D 19 Papillomatosis	1												
E 4													
Miscellaneous	11 cases reported in text: 1 adenoma, 1 fibroma, 1 sarcoma, 1 carcinoma in scar after operation elsewhere												

recurrence at the same site or ulcerative lesions at the base, all of which were proved malignant by pathologic examination. Many patients came to the hospital after varying periods of futile and repeated fulgurations for tumors which could have been diagnosed at the first examination if a biopsy had been made.

Papillary carcinomas with muscularis invasion and nonpapillary carcinomas can usually be diagnosed clinically by cystoscopy and bimanual palpation for infiltration. Although a biopsy may not give evidence of the true extent of the lesion, nevertheless it is advisable to have histologic evidence of a malignant condition before recommending radical surgery to the patient.

TABLE 5.—*End-Results in Bladder Tumors*

	Cases Followed	Number Arrested	Percentage Arrested
1. Papilloma	90	87	96
2. Papillary carcinoma			
Noninfiltrating	21	9	43
Infiltrating	78	16	20
3. Nonpapillary carcinoma	29	5	17

BIOPSY IN LESIONS SIMULATING NEOPLASM

A considerable variety of lesions of the bladder may simulate neoplasm and confuse even the most experienced cystoscopist. A biopsy may be invaluable therefore in avoiding therapy, surgical or otherwise, misdirected and even contraindicated for the case. As examples, one may enumerate bullous edema, cystitis cystica and glandularis, impacted ureter stone, polypoid infection, incrusted cystitis, inflammatory lesions and tuberculosis of the ureteral orifice, leukoplakia with callous ulcers of the bladder. The reaction to oft repeated and over enthusiastic application of the high frequency method of treatment has produced at times a brawny infiltration simulating extensive infiltrating carcinoma, and the failure to confirm the clinical impression by biopsy led to an unnecessary and in fact harmful resection of the bladder and ureter orifice in one of our own cases. A young woman was referred from the outpatient department with the cystoscopic diagnosis of infiltrating carcinoma of the posterior bladder wall. A biopsy showed edema and inflammation. So closely did the lesion simulate neoplasm that two additional biopsies were made with the same result. The history of an iodine douche accidentally entering the bladder and followed by immediate vesical symptoms was then elicited. The lesion disappeared gradually without treatment.

ASSOCIATED LESIONS; SECONDARY TUMORS

Vesical calculi, prostatic hypertrophy, and vesical diverticula occur not infrequently in patients with tumor of the bladder. Diverticulum occurred twelve times in this series of cases and in eight the tumor occurred either within the diverticulum or at its vesical orifice. In four cases the biopsy indicated that the tumor arose from the prostate, and this was confirmed by the subsequent clinical course.

PROGNOSIS

In table 4, all the cases studied are tabulated as to the end-results with the exception of fifteen miscellaneous cases, eleven of which are reported in the text. If cytologic criteria alone indicated the prognosis, one would expect a decided difference in the number of arrested cases in groups II a and II b; but the percentages are almost identical.

If bladder wall infiltration indicated the prognosis, groups II f and III should show similar end-results, which is the case in this series.

If one compares the noninfiltrating papillary carcinomas (II a and b) with the infiltrating papillary car-

cinomas (II c, d, e, f) the percentage of arrested cases is 43 and 20, respectively (table 5). The unusually good results obtained in group II e are ascribable, I believe, to the fact that in nine of the eighteen cases (50 per cent) an adequate partial resection of the bladder (entire thickness) was feasible.

Cases of papillomatosis are treacherous from the standpoint both of diagnosis and of prognosis. Of thirteen cases in this series, nine were benign in their course and in four a malignant condition developed.

Prognosis in malignant conditions cannot and should not be made from a biopsy alone. For the individual patient the prognosis cannot be made on any basis—all malignancy is grave for him.

CONCLUSIONS

1. Reliable information as to the nature of bladder tumors is obtainable by cystoscopic biopsy in 97 per cent of cases. The failures occur in multiple tumors and in papillomatosis. Prognosis cannot be made from biopsy alone in cases of malignancy.

2. A biopsy diagnosis of malignancy in a case simulating papilloma, as seen at cystoscopy and by its response to fulguration, is a signal for more radical therapy (radium or surgery), except in the debilitated patient.

3. Bladder tumors may be classified in a manner harmonious with general tumor terminology and with clinical terminology. They are benign or malignant.

4. Classification based on cell grading alone is not as practicable for clinical purposes, and prognosis on such basis does not coincide with the late results in this series of cases.

5. The presence or absence of infiltration appears to be a more reliable guide to the gravity of the situation.

6. The site of the malignant tumor determines its resectability and thus influences prognosis materially.

7. If a biopsy diagnosis of carcinoma is made and the case is considered surgical, resection of the whole thickness of the bladder wall should be the procedure of choice. Failure to do so, even in the case of pedunculated tumors, has often resulted in recurrence. Stalk invasion and tumor cells in blood vessels at the base cannot be detected by gross inspection. As only twenty-nine of 137 papillary carcinomas were not infiltrating, it is probable that types IIa and b represent an earlier stage of the disease.

8. Before radical surgery of the bladder is undertaken, a biopsy should be made, as other lesions may resemble neoplasm very closely.

35 East Eighty-Fourth Street.

The Mechanism of Expectoration.—Expectoration is effected by raising the intrapulmonary air pressure and then suddenly allowing the air to escape and carry with it any peccant matter that may be lying in the air passages. It follows, therefore, that the requisite modification of expiration must be preceded by inspiration, and to a great extent its mechanism will be modified by the position of the thorax at the commencement of the expiratory effort. . . . However, it must be admitted with Keith that, owing to the resistance of the abdominal viscera and to the situation of its attachments, the diaphragm in contracting tends not merely to lower the central tendon but also to elevate and to some extent constrict the costal margin. This seems to be the obvious explanation of what is known as John Howard's experiment, on which Makuen, apparently alone among authors, relies for his assertion that the diaphragm is an expiratory muscle.—Wall, Cecil: *Lancet*, Nov. 10, 1928.

THE SURGICAL TREATMENT OF MALIGNANT TUMORS OF THE BLADDER

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ROCHESTER, MINN.

The diagnosis of surgical lesions of the urinary tract has reached a high state of accuracy through cystoscopic and allied methods of examination, entirely to the credit of the urologist, who through his accuracy and precision in the conduct of diagnostic and operative procedures has established principles on which standardization of methods of treatment of most surgical lesions of the urinary tract has been possible. No longer is there a wide divergence of opinion regarding surgical principles or procedures in lesions of the kidney and ureter or in the management of benign prostatic hypertrophy. As yet, however, little uniformity exists in the treatment of malignant lesions of the bladder.

Surgery, irradiation, electrocoagulation, and so forth have all been employed long enough, it would seem, so that a comparison of the results from the respective methods should lead to some uniformity of opinion regarding treatment. It is extremely difficult to evaluate reported results in favor of various therapeutic measures and actually learn the truth, apparently because of absence of uniformity in the classification of malignant lesions in terms of pathology, degree of malignancy, and situation and extent of the lesion, all of which require consideration in determining the most suitable treatment and in ascertaining results.

The predominating malignant lesion of the bladder is epithelioma. In my experience, epithelioma has comprised 95 per cent of these lesions. Epithelioma, grossly and clinically, manifests various degrees of malignancy. Broders [1] has presented data on the microscopic differentiation of the various grades of malignancy which provide a guide to the therapeutic measure and serve as a means of relative prognosis. On the basis largely of cellular differentiation, he classifies epithelioma in four grades. Irrespective of the site of the lesion in a series of 480 graded epitheliomas, the incidence was graded 1 (least malignant) in 10 per cent; 2 in 32 per cent; 3 in 35 per cent, and 4 in 23 per cent. Thus it will be seen that more than half (58) per cent of the tumors were of a high degree of malignancy. The site of the tumor appears to have some bearing on the degree of malignancy. Apparently there is a tendency for the development of highly malignant epitheliomas in the base of the bladder as opposed to the lateral wall or the dome. In a series of 150 epitheliomas of the base, the incidence of high-degree malignancy (graded 3 and 4) was 64.6 per cent, as opposed to 53.6 per cent of 214 epitheliomas of the lateral walls and dome, comparable in a measure to the difference in the degree of malignancy existing in malignant lesions of the cervix of the uterus and the fundus. Obviously, 10 per cent better results may justifiably be expected in the treatment of epitheliomas of the lateral walls and dome than of those of the base simply on the degree of malignancy, everything else being equal. Other factors influence the results of treatment, however, not least

* From the Division of Surgery, Mayo Clinic, Rochester, Minn.
* Read before the Section on Urology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 14, 1928.
1. Broders, A. C.: Epithelioma of the Genito-Urinary Organs, Ann. Surg. **75**: 574-604 (May) 1922.

of which is the extent of the involvement. While the lesions graded 1 and 2 are most often confined to mucous membrane, it is usual for those graded 3 and 4 to infiltrate the wall of the bladder, often with extravesical extension. This is particularly true of high-grade malignant lesions of the base and contributes to inoperability.

The time of instituting treatment has a significant bearing on operability and on the results of treatment. In a review of fifty-one cases in which the disease had advanced so far that it was not thought advisable to attempt any form of treatment, it was found that the average duration of symptoms previous to the patient's admission to the clinic was almost two years. Excepting those lesions amenable to transurethral electrocoagulation a most conservative estimate places the inoperability of the major malignant lesions at not less than 25 per cent. It seems that improvement in results of treatment is dependent not so much on the institution of new or more radical measures than have been employed in the past as on earlier recognition and opportunity for the application of recognized therapeutic procedures.

I shall not discuss the diagnosis of malignant lesions of the bladder, but the importance of careful investigation in all cases in which symptoms are referable to the bladder, especially hematuria, is worthy of emphasis. If the hematuria is found to be of vesical origin, the burden of proving the innocence of the lesion of the bladder producing hematuria rests directly on the urologist. It is questionable whether such methods of differentiating the malignancy or benignancy of doubtful lesions of the bladder according to their response to electrocoagulation or irradiation is always justifiable. The removal of a specimen of the lesion for microscopic examination, it seems to me, is the most logical procedure if malignancy is suspected. Broders' index of malignancy has become a reliable guide to the type of treatment indicated and to the extensiveness of operative procedures. Frater [2] has shown in a recent review of microscopic sections of a large series of malignant tumors of the bladder that the degree of malignancy is constant throughout the entire tumor, and that a representative specimen of the lesion removed through the cystoscope reveals the true degree of malignancy of the entire tumor, its transplants and the recurrent growths.

There are certain small, single or multiple low-grade malignant lesions amenable to transurethral electrocoagulation. Beer,[3] Crenshaw,[4] and others have had a great deal of experience with such lesions and have suggested methods and indications for treatment. The lesions that are not amenable to transurethral methods of treatment, however, present the greatest problems, by virtue often of the high degree of malignancy, the extensive involvement and the situation. Tumors of the bladder may be classified according to their situation into two groups: those confined to the lateral and posterior walls and dome, and those of the base with involvement of one or both ureters or the internal urethral orifice. In a consideration of malignant lesions of the bladder, it is essential to recognize these two groups for there is a difference in the degree of malignancy which influences the magnitude of the surgical procedure and the ultimate results.

2. Frater, Kenneth: A Study of the Epithelial Neoplasm of the Bladder, Tr. Am. A. Gen.-Urin. Surg., to be published.
3. Beer, Edwin: Physical Agents in the Treatment of Bladder Tumor, Am. J. Surg. **4**: 113-132 (Feb.) 1928.
4. Crenshaw, J. L.: Observations on Malignant Epithelial Neoplasms of the Bladder, Tr. Am. A. Gen.-Urin. Surg. **18**: 197-207, 1925.

Beer recently reported his experience with various physical agents in the treatment of the tumors of the bladder. Barringer,[5] Frontz,[6] Keyes,[7] Bumpus,[8] and others have had a great deal of experience with irradiation, with variable results. Bumpus, in a review of 212 cases in which radium alone, or radium in conjunction with some other form of treatment, was employed, concluded that: (1) radium treatment followed by operation produces poor results; (2) radium treatment alone is not successful in cases in which other methods of treatment cannot be used, and (3) radium is most useful in association with fulguration or operation.

Many methods of treating tumors of the bladder have been advocated. I believe, however, that the relative merits of the respective methods may be ascertained in the future only when the results of treatment are analyzed in terms of the relative degree of malignancy and according to the situation and extent of involvement. From present knowledge of the results of the various methods of treatment, one must conclude that an operable malignant lesion of the bladder is most successfully dealt with surgically. Difference of opinion may exist regarding operability. Most tumors of the dome, or lateral or posterior walls are operable, and, if of the infiltrating type, may be removed by segmental resection, or by some method of excision if the malignancy is of a lower grade, with a relatively low mortality. Tumors in the base of the bladder of a higher grade of malignancy with extensive involvement and infiltration are more often inoperable. Surgical procedures for malignant disease, curative in purpose, possess a justifiable risk and a mortality directly in proportion to the relative prospect of cure. The grade of the malignancy furnishes an excellent guide to the magnitude of the contemplated operation. Obviously, the prospects of cure by surgical removal of a lesion of low-grade malignancy are much greater than in one of high-grade malignancy in the same situation with a similar degree of involvement. The preoperative knowledge of the degree of malignancy, as ascertained by examination of a specimen removed through the cystoscope, serves as a guide to the justifiable risk of the operation, as opposed to the relative prospect of cure. In general, it may be stated that a surgical procedure is hardly justifiable if it subjects the patient to a relative percentage of risk higher than the relative percentage prospect of cure. The risk of any surgical procedure, however, is not likely to exceed the prospects of cure except in extensive lesions of the base of the bladder.

GENERAL RESULTS AND MORTALITY

I have recently reviewed 370 cases of graded epithelioma of the bladder in which operation was performed at the Mayo Clinic. These cases serve as a basis for certain facts and observations presented here. The operations were all curative in purpose and the cases included those in which surgical diathermy was used, but did not include those in which only palliative operations were carried out. In general, the results show that irrespective of the size or situation of the lesion or the magnitude of the operation, 65 per cent

5. Barringer, B. S.: Radium Removal of Carcinoma of the Bladder, J. Urol. **13**: 131-147 (Feb.) 1925.
6. Frontz, W. A.: A Consideration of Bladder Tumors with Special Regard to Therapeutic Measures Best Suited to the Different Types, Tr. Am. A. Gen.-Urin. Surg., to be published.
7. Keyes, E. L.: Two Years' Experience with Radium Seeds in the Treatment of Bladder Carcinoma, Tr. Am. A. Gen.-Urin. Surg., to be published.
8. Bumpus, H. C.: Modern Methods and Results of Treating Malignancy of the Bladder, J. A. M. A. **83**: 1139-1142 (Oct. 11) 1924.

of patients on whom radical operations had been performed and the lesions graded 1 and 2, as opposed to 34 per cent in whom the lesions were graded 3 and 4, lived three or more years free of recurrence. When results were classified according to the site of the lesion, it was found that those following operation on the base of the bladder are not as good as those following operations in the lateral wall and dome. Approximately 50 per cent of patients with tumors of the base graded 1 or 2 and only 25 per cent with tumors graded 3 or 4 lived three years or more. If the tumors were in the lateral or posterior walls or dome, approximately 73 per cent of patients with tumors graded 1 or 2 and 42 per cent with tumors graded 3 or 4 are living three years or more. I have chosen the three-year period rather arbitrarily in this series as a basis for ascertaining results. I am not unmindful of the possibility of recurrences after this period, but the probabilities are not great.

In 214 cases in which the lesions were situated in the lateral or posterior walls or dome, and were removed by resection or some type of excision, there were eighteen deaths, a mortality of 8.8 per cent, as opposed to thirty-two deaths in 150 cases of lesions in the base, a mortality of 21 per cent. It should be stated that death occurring at any time previous to complete recovery from the operation has been considered as a surgical death. Seven of the deaths following operation for tumors of the base occurred after thirty days and as late as two and a half months after operation.

SURGICAL PROCEDURES

While I desire to confine my discussion to operations curative in purpose, palliative surgical measures require brief mention. On account of urinary retention and obstruction at the outlet of the bladder, palliative suprapubic cystostomy is sometimes necessary. Otherwise, little can be accomplished in inoperable cases; except for the control of excessive bleeding, the actual cautery in the form of soldering irons or the Percy cautery has been employed. The employment of the cautery as a palliative measure sometimes yields unexpectedly excellent results, particularly if the lesions are of a low grade of malignancy. Bumpus reported a series of thirty cases in which extensive inoperable tumors were destroyed by cautery, and seven patients have lived more than four years, and one for nine years. Peterson [9] has called attention to similar results obtained by the use of the Percy cautery.

OPERATIONS FOR TUMORS OF THE LATERAL AND POSTERIOR WALLS AND DOME

Of 214 tumors in this situation, segmental resection was performed in 114 cases with eleven deaths, a mortality rate of 10 per cent, as opposed to seven deaths following the various types of excision in 100 cases. Segmental resection has been instituted for all infiltrating lesions, and the excised area has included the entire thickness of the wall of the bladder with removal of all perivesical adherent tissues and peritoneum in cases of peritoneal involvement. The incidence of recurrence has been markedly diminished by wide resection including the normal wall of the bladder for at least 1 cm. around the margins of the lesion. Careful mobilization of a large portion of the bladder often facilitates radical resection in cases of extensive involvement. The low-grade malignant lesions usually are not infiltrating, seldom involve more than the mucous membrane and in most instances lend themselves to knife or cautery excision. Cautery excision, when it can be applied readily, is the method of choice and is less likely to be followed by recurrence at the primary site of the lesion. The results in general of resection and excision of tumors in this situation have been practically the same, slightly better for excision, as is to be expected, in that the less extensive and less malignant lesions are amenable to excision. Tumors in this situation offer the most hopeful prognosis and, with earlier recognition and application of approved surgical measures, the results should in the future show continued improvement.

OPERATIONS FOR TUMORS OF THE BASE OF THE BLADDER

Operations on tumors of the base of the bladder, curative in purpose, necessarily include disposition of the ureter. One or both ureters may be involved, if not actually in the lesion, in the surgical procedure, necessitating some method of disposing of the ureter. It is the ureter, and in turn the kidney, that increases the danger of radical surgical procedures for malignant lesions in this situation, and the surgical principles involved are those concerned with disposition of the ureter. Chute,[10] Judd,[11] and others have favored the operation of total cystectomy for extensive operable lesions in this situation; the mortality rate incident to the care of the ureters, however, has been such that total cystectomy is, as yet, hardly a practical procedure. It would seem that preliminary transplantation of the ureters into the sigmoid, as practiced in exstrophy of the bladder, should be a safe preliminary procedure; the conditions, however, are not at all similar. It is probable that the kidneys, through exposure of the ureteral orifices in exstrophy of the bladder are no longer readily susceptible to ascending infection. This, however, readily occurs following transplantation of the ureters in the presence of malignant disease of the bladder. Cystectomy as the primary operation, with temporary external drainage from the ureters with the idea of subsequent transplantation into the sigmoid, has not been sufficiently perfected to obviate ascending infection to the kidneys. Hinman's [12] suggestion of preliminary pelviostomy possesses merit which I believe is well worth consideration. I have seen few cases in which total cystectomy might be considered; usually the extensiveness of the lesion, if not amenable to the less radical procedures, is such as to preclude cystectomy. This is particularly true of the high-grade malignant lesions. At present the risk of total cystectomy so greatly exceeds the relative prospect of cure that it is questionable whether its consideration is justifiable for other than the occasional low-grade malignant lesion not amenable to other therapeutic measures. With the exception of four cases in which total cystectomy was performed, or the ureters transplanted into the sigmoid preliminary to cystectomy, in all of which death occurred, surgical procedures have been limited to segmental resection and surgical diathermy for tumors of the base of the bladder.

9. Peterson, Anders: A Preliminary Report on the Treatment of Cancer of the Bladder with the Percy Cautery, Tr. A. Res. and Ex-Res. Physicians Mayo Clin. **5**: 143-146, 1924.

10. Chute, A. L.: Ureteral Transplantation in Bladder Carcinoma, J. A. M. A. **87**: 1613-1617 (Nov. 13) 1926.

11. Judd, E. S.: The Treatment of Carcinoma of the Bladder by Radical Surgical Methods, J. A. M. A. **87**: 1620-1623 (Nov. 13) 1926.

12. Hinman, Frank, and Belt, A. E.: Experimental Hydronephrosis: The Failure of Diuresis to Affect Its Rate of Development, J. Urol. **9**: 397-419 (May) 1923. Hinman, Frank: The Indication of Nephrostomy Preliminary to Ureterorectoneostomy, J. A. M. A. **86**: 921-926 (March 27) 1926.

RELATIVE MERIT OF URETERAL LIGATION AND REIMPLANTATION

In cases of malignant lesions of the base of the bladder, in which the ureter is involved, occluded or encroached on, it is necessary to divide the ureter and dispose of it subsequently either by ligation, placing entire reliance for total renal function on the remaining kidney, or by reimplantation of the ureter into the remaining portion of the bladder. Experimental and clinical investigation of the effect on the kidney of reimplantation of the ureter and ligation of the ureter has furnished data on which the merit of each method of dealing with the ureter may be determined. It is known that at least temporary hydronephrosis occurs in man following ligation of the ureter. Hinman's experimental work confirms Harrington's [13] observations on dogs that when the ureter has been divided and ligated, hydronephrosis results, the degree being uniformly proportionate to the duration of the obstruction, and that primary atrophy does not occur. The results of clinical observation in man after ligation of the ureter would indicate, however, that the increased pressure within the pelvis of the kidney becomes so great that secretory activity of the kidney subsides early and results in atrophy of the organ. At least in man it is known that marked hydronephrosis does not occur after ureteral ligation, nor does the kidney, in the absence of renal infection, cause trouble subsequently.

This series includes ninety-nine cases of segmental resection of the bladder for tumors of the base with ligation or reimplantation of the ureter. In fifty-two cases the ureter was disposed of by ligation; there were seven postoperative deaths, a mortality rate of 13.4 per cent. Although the clinical causes of death were pulmonary embolism, pneumonia, pyelonephritis, and so forth, necropsy disclosed pyelonephritis in all. Nephrectomy for an infected hydronephrotic kidney was necessary in two cases, one five days after ligation followed by death, the other thirty days after ligation followed by recovery. In three cases drainage of an infected hydronephrotic kidney was necessary; two patients died and one recovered. In forty-seven cases the ureter was disposed of by reimplantation; there were fifteen deaths, a mortality rate of 32 per cent. These deaths occurred from the third to the forty-fifth day. The clinical cause of death in each instance was ascending infection, which was shown at necropsy to be extensive in eleven cases.

It would seem that the results should be about equal for the two types of operation, for whether the ureter was ligated or reimplanted was not particularly influenced by the extent of the disease. Half of the patients with tumors graded 1 or 2, and a fifth with tumors graded 3 or 4, who recovered from the operation of segmental resection with ligation of the ureter, lived more than three years without recurrence, which is a slightly higher ratio than when segmental resection of the bladder with reimplantation of the ureter was performed. It is noteworthy that the results, when patients survived three years or more, are exceptionally good for various grades of malignancy. Most of the patients are living and well from five to nine years later, during which period their condition has been carefully followed.

My experience with these methods of dealing with the ureter in segmental resection for extensive lesions of the base of the bladder convinced me that ligation of the ureter is the method of choice. Even though nephrectomy was necessary in two cases and drainage of an infected hydronephrotic kidney in three cases following ureteral ligation, the danger from such conditions and procedures does not compare with those from ascending infection, so prone to follow reimplantation.

SURGICAL DIATHERMY

Suprapubic transvesical electrocoagulation has served as a method of treating certain tumors of the bladder. Beer, Corbus [14] and others have been instrumental in perfecting methods of effectiveness and relative safety. O'Conor [15] reported very gratifying results. At the Mayo Clinic, use of the method has been confined largely to extensive infiltrating lesions of the base not resectable and largely inoperable, at least so far as the application of strictly surgical procedures is concerned. Electrocoagulation has likewise been used in conjunction with various types of excision in which it was applied to the site of the tumor after its excision. There were fifty-one cases in the group of extensive single or multiple infiltrating tumors of the base with involvement of one or both ureters or internal urethral orifice. Most of these cases, previous to the advent of the practical use of transvesical electrocoagulation, would have been treated only by exploration or palliative cystostomy, actual cautery destruction or irradiation. On account of the extensiveness of the lesions, little attention was paid to the ureteral orifices, and likewise with lesions extending back onto the posterior wall above the peritoneal reflexion in the culdesac some risk of subsequent perforation was assumed. In this series there were ten deaths within two and a half months, only five of these occurring within thirty days of the operation. Two of the deaths were from general peritonitis, and the remainder were from pyelonephritis. The method has been used in the Mayo Clinic only a little more than three years and sufficient time has not elapsed to warrant the drawing of conclusions about ultimate cure. Eight patients died within the first year from the primary disease or from recurrence; two others died in the second year and one in the third; three patients have not been traced. Five patients had recurrences from three months to two and a half years after operation. Twenty-two patients, however, have remained free from recurrence from six months to more than three years. Fourteen of eighteen patients with malignant lesions graded 1 or 2, as opposed to eight of twenty-six patients with lesions graded 3 or 4, recovered from the operation and have not had recurrences. Although the ultimate results of electrocoagulation cannot as yet be determined in this series of cases, the results are most encouraging, if one bears in mind the inoperability of the lesions in which the method was used. It is obvious that irrespective of the method of treatment the results obtained are directly dependent on the degree of malignancy and the situation in the bladder; the results are better in the low-grade malignant lesions and the lateral walls and dome than in the highly malignant lesions and the base of bladder.

RECURRENCES

Postoperative recurrence or extension of the tumor regardless of the method of removal occurs usually in the form of implantations, either before or after operation, contact transplants, direct extension beyond the

13. Harrington, S. W.: The Effect on the Kidney of Various Surgical Procedures on the Blood Supply, Capsule, and on the Ureters, Arch. Surg. **2**: 547-592 (May) 1921.

14. Corbus, B. C.: The Treatment of Tumors of the Bladder Without Local Excision, Surg. Gynec. Obst. **33**: 517-528 (Nov.) 1921.

15. O'Conor, V. J.: Results in the Treatment of Cancer of the Bladder, Illinois M. J. **52**: 369-374 (Nov.) 1927.

tissue removed or through extension along the lymphatics. Implantation growths that have occurred prior to operation and are too small to be seen, as well as those that may occur during the course of the operation, usually give rise to small superficial lesions, which, if seen three months later, are usually easily destroyed by transurethral electrocoagulation. Local recurrence develops in a variable percentage of cases regardless of the method of excision or the degree of malignancy. Recurrence after radical excision of a growth of low-grade malignancy, however, is less likely to occur than after the same procedure for highly malignant tumors. Recurrence as the result of transplants during operation may be minimized by precautions regarding the toilet of the wound and the operative field. Beer recommended the alcohol bath for the bladder and wound at the conclusion of the operation; he believes this an effective method of destroying loose malignant cells.

The most effective method of controlling recurrence is the accurate follow-up system, as outlined by Crenshaw.[16] This facilitates cystoscopic examination at regular intervals, provides a method of recognizing recurrence before symptoms develop, and shortens the period between recurrence and treatment, thus markedly enhancing the end-results.

SUMMARY

Ninety-five per cent of the malignant lesions of the bladder are epitheliomas of varying degrees of malignancy, more than half being highly malignant (grades 3 or 4) irrespective of situation. The lesions of the base of the bladder tend toward a higher degree of malignancy than those of the lateral walls and dome. The mortality rate of surgical procedures is dependent on the site of the tumor, the magnitude of the operation, and, in lesions of the base of the bladder, on the method of disposing of the ureter. The mortality is lowest following the excision types of operations employed in the lateral walls and dome and highest in segmental resection for tumors of the base with reimplantation of the ureter, hardly a justifiable procedure. Division and ligation of the ureter has proved the best method when the ureter is involved in the lesion or in the operation for extensive operable tumors of the base.

Approximately 370 cases of epithelioma of the bladder, in which curative surgical procedures were carried out, have been studied to determine results. The study has indicated that results are dependent on the situation of the tumor, its extent and its degree of malignancy. In general, irrespective of the size or situation of the tumor, approximately 65 per cent of the patients with malignant lesions graded 1 or 2 are living and well three years after operation, while of those having radical operations for lesions graded 3 or 4 approximately 35 per cent obtained equally good results. When the site of the growth is taken into consideration, the results of surgical treatment of tumors of the lateral walls and base are nearly twice as good as those of the base, the degree of malignancy being equal. Approximately 73 per cent of patients with tumors of the lateral walls or dome, graded 1 or 2, and 42 per cent with tumors graded 3 or 4 are living three or more years, while 50 per cent of patients with tumors in the base graded 1 or 2, and 25 per cent of patients with tumors graded 3 or 4 lived without recurrence for the same period.

It is apparent that the merit of various surgical procedures and physical agents used in the treatment of malignant tumors of the bladder may be judged and accurate results of treatment ascertained only if cases are analyzed in terms of pathology, degree of malignancy, site of the lesion and extent of involvement. Not all patients can be cured, but I believe a higher percentage of good results may be obtained by surgical than by any other methods.

16. Crenshaw, J. L.: The Follow-Up Record in Cases of Tumor of the Bladder, J. Urol. 5: 211-213 (March) 1921.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ASCHNER AND HUNT

DR. E. T. BELL, Minneapolis: This subject is greatly in need of a standardized nomenclature. It may be necessary for this section to do as the surgeons did in the study of bone tumors; i. e., appoint a committee to study the subject for a year or two, and make recommendations. We do not all talk the same language. I classify about 50 per cent of the tumors of the bladder that come under my observation as benign papillomas. I notice that Dr. Hunt considers 85 per cent malignant. I have been accustomed to classify tumors of the bladder as benign papilloma, papillary carcinoma and flat carcinoma, which corresponds fairly closely to what Dr. Aschner has said. Benign papilloma is a tumor which can be recognized without the microscope. It has a slender pedicle and delicate filaments that float in the urine. Biopsy is unnecessary. Any tumor that is flat is likely to be malignant and should be examined at biopsy. Our whole difficulty comes in the group of malignant papillary tumors. In the older literature these were called malignant papillomas, but it is almost impossible to find out exactly what was meant by the term. Follow up records show about as many recurrences of the benign as of the malignant papillomas. Tumors with a slender pedicle should not be considered malignant unless there is definite malignant invasion of the pedicle. Papillomas of the uterus that are microscopically malignant have been cured by simple curettage. A biopsy from the top of the tumor which includes only the filaments is not satisfactory since it does not tell whether there is invasion of the pedicle. I have a feeling that the diagnosis should be based on the gross appearance of the tumor in large measure, on its situation, and on whether it infiltrates. These things are of great importance in determining the question of a malignant growth. The classification proposed by Dr. Aschner is, I think, fairly close to what we want. The only argument would be in the group that he calls recurring papillomas, which were not infiltrating. I should like to know how they recurred—whether as infiltrating tumors of the bladder wall. Papillomas of the lip may recur as benign papillomas. The mere fact of recurrence does not establish the presence of maligant disease.

DR. A. G. FLEISCHMAN, Des Moines, Iowa: Ten of fifteen patients treated with surgical diathermy for tumors of the bladder are now living and apparently well and free from their complaint. Some of these patients are alive years after surgical treatment. It seems to me that this particular procedure has a greater field of application than many surgeons concede, and I cannot understand why urologists in general are not utilizing it to a greater extent. I was very much surprised to hear that Dr. Hunt limited the application of surgical diathermy in his cases to only the infiltrating papillomas of the bladder. I have devised a diathermic snare for the removal of growths situated in the inaccessible parts of the bladder. This instrument consists of an ordinary Beck-Mueller tonsil snare, properly insulated, and has attached to its carriage a heavy insulated diathermic conducting cord. The tumor is engaged in the loop of the snare and closed tightly around its base, and the current is turned on and gradually increased until sufficient coagulation has taken place for the removal of the tumor. I have found this instrument of great assistance.

DR. JOSEPH F. MCCARTHY, New York: I believe that the occasional apparent cures of infiltrating carcinoma by radium are accidental rather than by design. Radium can cure infiltrating carcinoma but that it does so by the methods at present employed I am ready to debate. My results with radium in infiltrating carcinoma have been failure 100 per cent "plus." The "plus" is emphasized here, because I believe that these patients have been subjected by this agent to rapid metastasis and regrettably

distressing experience that they might well have been spared had I employed other measures. The teaching that radium can or will supplant rational surgery in this particular field is, in my opinion, both erroneous and dangerous. A few years ago radium needles were the vogue. Then came glass emanation seeds, and finally gold and platinum. It is quite evident that unless a radically different conception of procedure is arrived at, the advocates of radium must soon exhaust the supply of metal carriers. The present attitude of the Mayo Clinic with its unmatched facilities and with the world renown that it enjoys, in assuming the position taken by Dr. Hunt on this question, must certainly convey a significance that should burn itself into our minds. Likewise Dr. Aschner asserts without qualification that resection is the operation of choice when the malignant growths are in a resectable part of the bladder. I like to consider the bladder as a rubber ball with a relatively fixed base, the fixed base being represented by the trigon, and the remainder the rubber ball, and I believe that a malignant condition in any part of the rubber ball portion of the bladder should be treated by wide, radical resection. As a primary step in the employment of any physical agent, whether it be radium or diathermy or cautery, the growth should be segregated from the rest of the body by a circularized wall of electrocoagulation well beyond the growth, after which the growth itself should be attacked. To attempt the destruction of these growths through the customary suprapubic incision with a maze of retractors in the bladder, whether by diathermy or radium, is utterly wrong. To obtain adequate results with this very malignant disease, to treat it effectively, we must have the fullest conception of the extent of the malignancy. This cannot be had until the bladder is so delivered from its peritoneal bed as to make possible visualization of its base and posterior wall. I feel that for the most part, this malignant condition is being treated in altogether too radically conservative a manner.

DR. W. F. BRAASCH, Rochester, Minn.: One of the favorite indoor sports of urologists is the classification of bladder tumors. There are more than a hundred, at least, and this has been going on ever since the days of Rokitansky. It is impossible to devise one based on a gross morphologic basis that will satisfy everybody. Dr. Broders has solved this problem by substituting a system of gradation of tumors. He has checked this up with the clinical results of cases and has found that his classification holds true. When he states that a papilloma is malignant I think he means that it is potentially malignant and that it may recur, but not necessarily so. It is of little value in prognosis whether a tumor is papillary or solid, flat, round or ulcerated, but it makes a great difference whether it is of grade 1, 2, 3 or 4 in malignancy. There is something to be said in favor of using the term infiltrating at operation when it can be grossly determined. Grade 1 never infiltrates and grade 2 rarely infiltrates, so that the term applies only to grades 3 and 4. It has been my experience that it is usually difficult to determine cystoscopically whether a tumor is infiltrating or not or the degree of malignancy. I have seen tumors that appeared on cystoscopy to be infiltrating which, much to my surprise when a specimen was removed for microscopic diagnosis, proved to be only grade 1.

DR. PAUL W. ASCHNER, New York: I just spent a few days at the Mayo Clinic and the opportunity to discuss the subject of bladder tumors with Dr. Broders was utilized. He and I are not so far apart, except that I am willing to make a diagnosis of benign tumors of the bladder and he is not. His grade 1 tumor includes both benign and malignant growths. It simplifies matters very materially if the pathologist can avoid the difficulties of differentiating them. Now Dr. Broders relies on Dr. Braasch's conservatism and clinical knowledge of how to treat bladder neoplasms, but that is a step backward to the early days of the therapeutic test of fulguration. I was gratified to note the stress which Dr. Hunt placed on location and infiltration as factors in surgery and prognosis, factors which are independent of pure cytology. On one other point Dr. Broders and I disagree. He maintains that one area of the tumor resembles every other area. Dr. Braasch, in practice at any rate, sides with me against this point of view, for I observed that his biopsy specimens consisted of several fragments of the tumor. His clinical experience must prompt him to take this precaution.

THE POLLEN CONTENT OF STILL AIR

IN RELATIONSHIP TO THE SYMPTOMS AND TREATMENT OF HAY-FEVER AND ASTHMA

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The disagreeable symptoms observed in patients suffering from sensitiveness to pollen vary with the pollen content of the air. In fact, in many districts, symptoms appear at the beginning of the pollen season and disappear completely with the termination of the season. If a patient can be moved from a given pollen district to one in which the air is nearly free of pollen (as can be accomplished by an ocean voyage), symptoms usually disappear only to return again on exposure to air that is rich in pollen. This principle in treatment (avoidance of pollen) has been used arbitrarily for centuries perhaps by physicians who have advised change in climate for the cure of asthma. In a certain proportion of patients, symptoms are less marked if a patient can remain in a pollen-free atmosphere part of the day. This method of treatment has been studied especially by Cohen and others through the use of so-called pollen filters and can be recommended as logical and practical for many persons. It is especially effective if used at times when pollen plates show that the air is laden with pollen.

METHOD OF TREATMENT

Pollen sufferers can be kept in an atmosphere free of pollen, however, by a much simpler method than that mentioned; in fact, by a method so simple that it can be employed by rich and poor alike.

The method consists, in substance, in having the patient remain in still air for a portion of the day during periods in which the air is laden with pollen. Still air, so far as its content in pollen is concerned, is a great deal like still water so far as its contents in mud is concerned. Muddy water becomes clear through settling if it remains still long enough, but is likely to continue muddy so long as it is in motion. Pollen settles out of the air in the same way that mud settles out of water, so that air which has been still for a time is practically free from pollen.

TABLE 1.—*Pollen Counts* *

	Sum Total of Daily Counts	Calculated Daily Average
Room closed constantly 1 year	185	0.5
Room well ventilated 1 year	20,576	56.0
Outside air 1 year	41,643	114.0

* A comparison of sum total pollen counts and daily average made during a period of one year in a room kept constantly closed, in a similar room well ventilated from outside air, and in the outside air itself.

The correctness of this statement can be observed in the accompanying tables, in which studies of the pollen content of the air are reported. These studies were made through exposing microscopic slides greased with white petrolatum to the air for varying periods of time and under different conditions of air stillness, natural air motion, and air put in motion artificially. The total number of pollen granules found microscopically on 0.55 square inch of surface were counted and compared. It may be mentioned in passing that counts made each day from slides exposed to the outside air for twenty-four hours during the period of two years in Kansas

City vary from nothing during the winter days to as high as 4,500 during some of the fall days.

Table 1 is interesting. Because of experiments being carried out on white rats in which an effort is being made to keep them for a long period in a pollen-free atmosphere, one of my laboratory rooms has been kept closed practically constantly for a period exceeding one and one-half years. The total number of pollen granules for a year (sum total of all counts) for the closed room was 185. This gave a calculated average daily value of 0.5 pollen granule. In an adjacent laboratory

TABLE 2.—*Pollen Counts**

Room closed 1½ years	0
Room closed 1 day (closed only 1 day)	3
Room closed 1 day with fan going 12 hours	8
Ventilated room, same day	20
Outside air count, same day	191

* A comparison of pollen counts (twenty-four hour exposures) made from a room closed one year, a room closed one day, a similar room closed one day with air kept in motion twelve hours by a fan, a similar room ventilated by a window opened to the extent of 6 inches, and finally the outside air.

well ventilated for the comfort of the technicians, the sum total of counts for the same year was 20,576, with a calculated daily average of 56. This count may have been unusually high because of the fact that pollen was used at odd times in this laboratory in the making of extracts. The sum total of counts during the same year on slides exposed in the same way to the outside air was 41,643, with a calculated daily average of 114.

Table 2 shows that, in a room kept closed for a considerable period, the pollen content of the air is practically nil. In a room closed for twenty-four hours, it is on an average less than 0.5 per cent of that of the outside air. An electric fan augments the count in a closed room but not to the extent that one would expect (if the room is clean). A ventilated room contains much more pollen than a closed room but much less than the outside air; in fact, only about one-tenth as much.

It should seem quite evident from this that, if a room is kept closed for as short a time as one day, it is a good place for the care of a pollen sufferer on days when the outside air is laden with pollen. Furthermore, if the rooms are kept clean there is no gross contra-indication to the use of an electric fan if outside air is excluded.

Experiments quite the reverse of those reported in Table 3 are interesting. On a day when the pollen count for a twenty-four hour exposure was 767, exposure of a slide to the open air at Richard's Air Field for one and one-half hours gave a count of 112 granules. This calculated for twenty-four hours would amount to 1,046, slightly greater than the actual number found in twenty-four hours. The average calculated for a period of thirty seconds from the open air at Richard's Air Field was 0.6. The pollen count made at the same time from a slide exposed one-half minute in the seat of an airplane with the propeller going rapidly, but not rapidly enough to lift the machine from the ground, was 82. The count as the plane rose from the ground to a height of 200 feet was 289. With further rises to a height of 3,000 feet, it varied from 289 to 341. At 4,000 feet the count dropped to 10. Pollen disappeared at a little higher level.

From the foregoing estimations it can be seen that in outside air rapid motion of the air caused by a propeller of an airplane on the ground causes a deposit of more than 100 times as much pollen as still outside air, whereas, with the propeller moving rapidly enough to lift the plane, the deposit is nearly 1,500 times as great, and at a still higher level, even up to a height of 3,000 feet, the amount of pollen deposited is in excess of 1,500 times the amount deposited by still outside air on the ground.

The foregoing statements serve to demonstrate the intense exposure encountered by pollen sufferers on trips by automobile or railroad on days when the air is filled with pollen. This type of exposure is really a severe tax on a pollen sufferer whether he has been treated or untreated. In fact, in the majority of treated patients who ought to remain clinically well, the cause of a recurrence can often be explained by a motor or railroad trip on days when the air is filled with pollen.

The fact that still air is likely to be poor in pollen and moving air may be rich in pollen at certain seasons should be impressed on patients who have pollen disease for, as a rule, the family, friends, and frequently even the physician of patients with pollen disease practice the reverse tactics in the handling of a case of asthma. They usually open the windows and fan the patient and, in this way, expose the patient to about as much pollen as they can.

The problem of keeping a closed room dry and cool in hot weather is not excessively difficult. The use of a fan is not objectionable in a room that is closed and free of pollen. A basement room on hot days is frequently cool. A patient in a warm room can keep himself reasonably cool by keeping quiet and by occasionally applying ice or cold water to his hands and arms. This in itself frequently reduces the severity of an attack. Air can be kept fresh through the use of pollen filters. It would be a hardship for a patient to remain in closed quarters during an entire pollen season. This, however, is not necessary. The pollen content of the air is never excessively high during an entire season. It is very high on some days and nearly nothing on others. It is highest, as a rule, during certain seasons, on windy sunny days following wet weather.

TABLE 3.—*Pollen Counts**

Ground aviation field (calculated)	0.6
Airplane propeller moving about half speed	82.0
Airplane rising to 200 feet, propeller full speed	289.0
Airplane at 400 feet, propeller full speed	335.0
Airplane at 600 feet, propeller full speed	328.0
Airplane at 1,100 feet, propeller full speed	319.0
Airplane at 1,600 feet, propeller full speed	341.0
Airplane at 3,000 feet, propeller full speed	329.0
Airplane at 4,000 feet, propeller full speed	10.0
Airplane at 5,000 feet, propeller full speed	0.0
Airplane at 6,000 feet, propeller full speed	0.0
Airplane at 7,000 feet, propeller full speed	0.0
Airplane at 8,000 feet, propeller full speed	0.0

* A comparison of pollen counts made after exposure of plates for thirty seconds to air on an aviation field (calculated from one and one-half hours' exposure) to exposures made behind the propeller of an airplane with propeller moving slowly and rapidly and with airplane rising to a height of 8,000 feet.

If, during the pollen season, the patient can remain in still air during the night and a portion of the day on sunny windy days, and thereby avoid contact with outside pollen laden air, he can avoid many of his more severe attacks of pollen hay-fever and asthma in the simplest possible way, and in this way add to the success obtained by other methods of symptomatic and specific treatment.

CONCLUSIONS

A very good idea can be gained concerning the amount of pollen deposited on surfaces by exposing a greasy microscopic slide to the air for a given period of time and examining it.

Pollen settles out of still air just as mud settles out of water. As a consequence, the pollen content of still air is practically nil. In fact, even in a room closed for one day, the pollen deposited in a period of twenty-four hours on a unit of surface was only 3 as compared with about 300 deposited within thirty seconds by air behind a propeller of an airplane even at a height of 3,000 feet.

A closed room is a good place for the treatment of patients with pollen disease on days when the outside air is laden with pollen. There is no contraindication to the use of an electric fan if the room is clean.

Federal Reserve Bank Building.

SURGICAL TREATMENT OF CARCINOMA OF THE RECTUM *

T. E. JONES, M.D.
CLEVELAND

Time will not be taken to discuss the diagnosis of cancer of the rectum. Attention has been called by numerous authors to the advisability of early diagnosis, but even today operation in the early stages is a rarity simply because of the neglect of digital or proctoscopic examination in cases of rectal bleeding. Nor will time permit a detailed description of the many two-stage operations which have been described by Lockhart-Mummery, Coffey, Jones, Rankin and others, except to mention the fact that all these authors have pointed out certain advancements in technic which have gradually led up to what I think will eventually be the ideal operation; namely, the combined abdominoperineal operation performed in one stage. Miles of London has advocated this procedure for several years. My interest in the subject was first stimulated by the splendid work of Dr. Daniel F. Jones of Boston, and in a recent conversation with Dr. Damon Pfeiffer of Philadelphia, I was pleased to learn that he is also a staunch supporter of this operation.

If we make intelligent use of the knowledge we possess, much may be done to relieve symptoms, to prolong life and to increase the curability of cancer of the rectum. As elsewhere in the body, a well planned operation for cancer of the rectum must carry with it a profound knowledge of the lymphatic drainage, and it is on this fundamental point that this operation is based. Therefore it might not be amiss to review the lymphatic system briefly. In a monograph, one of the Lettsomian lectures, the result of laborious, painstaking work, Miles has given us a very lucid and practical description of this system.

DESCRIPTION OF THE LYMPHATIC SYSTEM

The lymphatics of the rectum are divided into three groups: (1) intramural, (2) intermediary and (3) extramural. The intramural lymphatics are situated in the rectal wall, both in the submucosa and between the muscle layers. They communicate with one another and the collecting stems pass through the external muscular coat of the rectum and terminate in the lymph channels of the intermediary system. This system is composed of lymph sinuses which run under the peritoneum from the culdesac upward and in the perirectal fat from this point downward. These sinuses then empty into the lymphatic glands of the extramural system, which from an operative standpoint is the most important system. The efferent lymphatic vessels from this system then pass in three directions: (1) upward, (2) laterally and (3) downward (fig. 1).

The efferent lymphatic vessels which pass downward pass through to the ischiorectal spaces and eventually empty into the internal iliac lymph glands. The lateral channels enter a plexus between the levator ani and the pelvic fascia, which leads eventually to the obturator lymph glands, and these also eventually lead to the iliac lymph glands.

The main efferent vessels which extend upward accompany the superior hemorrhoidal veins, enter the glands in the pelvic mesocolon, and eventually meet the group of glands situated at the bifurcation of the left common iliac artery and the lumbar or aortic glands.

Clinical as well as histologic observations give preponderant evidence that the intramural extension of cancer of the rectum is quite trivial in extent, the more important mode of extension being extramural. Furthermore, we must not lose sight of the fact that there is communication between the downward, lateral and upward zones of extension.

Fig. 1.—First step in the evolution of the radical operation for carcinoma of the rectum. The tissues were widely excised and a perineal anus was generally preserved. (Redrawn from illustration by W. Ernest Miles.)

Too much praise cannot be given the investigation of the lymphatics made by Villamin, Huard and Montagne. They injected the lymphatics with various colored dyes, and from their observations divided the rectum into two parts, the high and the low rectum, the point of division being the third valve of Houston. They agree with Miles that treatment of cancer of the low rectum should be by the combined abdominoperineal route because there can be upward extension, but they believe that cancer in the high rectum can be treated by abdominal operation alone, because there is no downward extension by the lymphatics. Theoretically this may be true, but from a practical standpoint the dividing line is so narrow as to make it appear that from an operative and curative standpoint to depend on the abdominal operation alone is unsafe.

OPERABILITY

In a series of 589 cases reported by Miles, in 1923, the percentage of operable cases was 29.3. On the continent the operability is variously estimated in figures ranging from 20 to 80 per cent according to the operator and his criterion of what constitutes opera-

* From the Cleveland Clinic.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

bility. From a mass of statistics it is gleaned that, other things being equal, the lower the percentage of operability the greater the percentage of cures, and vice versa. There is, perhaps, too great a tendency to judge surgical procedures in terms of cures. If a surgeon considers only 30 per cent of his total number of cases operable, it stands to reason that his percentage of cures will be greater than that of a man who operates on 60 per cent of his patients. I make this comment merely

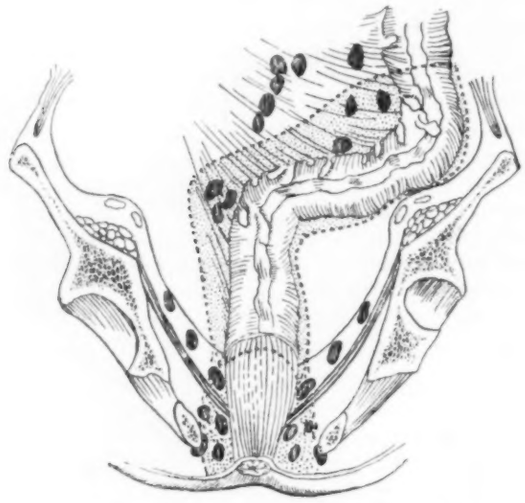

Fig. 2.—Second step in the extension of the operative field in carcinoma of the rectum. A permanent colostomy opening was made and a perineal excision was performed at the second stage of the operation. However, the glands were left in the mesosigmoid. (Redrawn from illustration by W. Ernest Miles.)

because I wish to emphasize the point that often, even if we cannot cure a patient, we can make him more comfortable for a time, and, in our desire to secure a high percentage of cures, we must not lose sight of this duty. Statistics pertaining to cures, then, should include the percentage of operability in a certain type of case. It is also a known fact that in general the higher the percentage of operability, the higher the mortality.

Technic of Operation.—It is advisable to hospitalize the patient for several days before operation in order that chemical studies of the blood and kidney function tests may be made. The colon is thoroughly cleaned by the use of repeated small doses of magnesium sulphate and enemas. If indicated by the blood pressure, ephedrine, in doses of three-fourths grain (0.05 Gm.), is given three times a day for a day or two before operation. I have noticed that this raises the blood pressure about 20 mm., which is an advantage because of the fall in blood pressure that occurs during spinal anesthesia.

The spinal puncture is made between the first and second lumbar vertebrae and from 2 to 3 cc. of spinal fluid is withdrawn and is used for dissolving the procaine hydrochloride crystals. The solution is then injected into the spinal canal and, in order to get complete diffusion, is withdrawn and reinjected several times. Coincident with the spinal puncture from 5 to 10 minims (0.3 to 0.6 cc.) of epinephrine is given hypodermically to keep the blood pressure from falling too low, and during the operation 5 minims is given whenever it is necessary to keep the pressure above 100 mm. of mercury.

The patient is then placed in the Trendelenburg position. A midline or left rectus incision is made, and the liver is palpated to discover whether or not it contains metastases. The pelvis is then explored to find whether or not there has been any extension of the growth into the peritoneum, to the glands in the mesosigmoid or to the aortic glands, and the operability is ascertained. The intestines are packed off with gauze and the inferior mesenteric artery is ligated about 1 inch below the bifurcation of the aorta, care being taken not to injure the left ureter. The peritoneum on each side of the mesosigmoid is cut down to the promontory of the sacrum, thus bringing into view the cellular space between the anterior surface of the sacrum and the pelvic mesocolon. The hand is placed within this space and the fat is separated as far as the sacrococcygeal articulation.

Traction on the bowel will then render prominent the peritoneum of the pelvic floor, which is cut forward on each side as far as the base of the bladder in the male, or to the upper part of the vagina in the female.

The anterior wall of the rectum is separated from the base of the bladder, and in the male the dissection is carried down to the upper border of the prostate, care being taken not to injure the vas deferens or seminal vesicles. In the female the anterior wall is dissected free from the posterior wall of the vagina. After this procedure the lateral attachments of the rectum can be clearly recognized. These are divided down to the levator muscle.

The next step consists in crushing the bowel in a favorable place for a colostomy without too long a loop, dividing it with a cautery and invaginating the ends with a purse-string suture. The distal end is then pushed down into the pelvis and the peritoneum is closed over it. If the available peritoneum is insufficient for this purpose, a flap may be dissected from the base of the bladder in the male, or from the broad ligaments in the female. On a few occasions I have sutured the fundus of the uterus to the peritoneum at the sacral

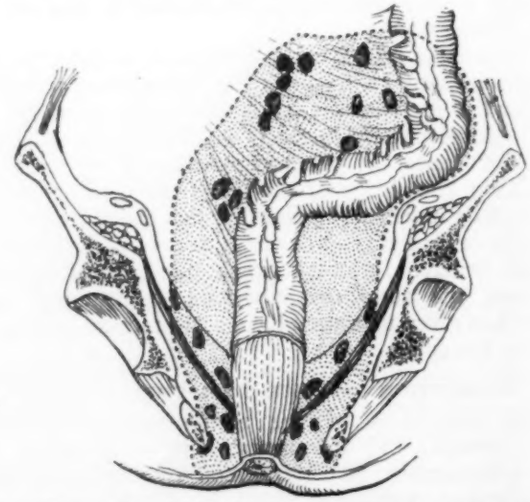

Fig. 3.—Extent of the dissection in the combined abdominoperineal operation. It is practically impossible to remove all the tissues in the upward zone of spread by the perineal route, and it is only by the combined operation that the dangerous tissues of the three zones can be removed. (Redrawn from illustration by W. Ernest Miles.)

promontory. The proximal end of the colon is used for the colostomy. This can be brought through the abdominal wall either through the original incision or through a left McBurney incision, the latter probably being preferable. After the abdominal incision is closed, the patient is placed on the abdomen with the hips slightly elevated and the perineal part of the opera-

tion is started by putting a purse-string suture around the anus. A midline incision is then made from the sacrum to the perineum, a considerable portion of the perianal skin on each side of the purse-string suture being taken away. The flaps are dissected back and the coccyx is removed at the sacrococcygeal articulation, beneath which is a layer of dense fascia, which is incised. The finger is then inserted into the large space above, which contains the distal portion of the bowel. The occygeus muscles are then cut, and when the bowel is pulled down the levator ani muscles come into view. These are divided at their origin from the lateral wall of the pelvis. The last step in the operation is the dissection of the anal canal from the tissues anteriorly, care being taken in the male not to injure the membranous portion of the urethra.

There remains a large cavity surrounded only by the walls of the pelvis. It is obvious that this cannot be closed and that it must heal by granulation. Following the advice of Miles, I place a piece of rubber tissue on the raw surface and pack gauze over it so that there may be no pain and bleeding when the gauze is removed, this procedure being begun forty-eight hours after operation. After the gauze drainage is all removed, the cavity is irrigated daily with boric acid solution under strictly aseptic precautions. On the fifth day 2 ounces (60 cc.) of warm olive oil is injected into the colostomy, this being generally sufficient to induce action of the bowels; if it is not, a mild laxative is given. If there has not been any postoperative complication, the patient is out of bed in two weeks and is urged to stand and to walk as much as possible. Miles has pointed out that, if these patients are allowed to lie too long, the granulation on the raw pelvis floor becomes so dense as to keep the peritoneum from stretching and consequently the cavity takes a longer time to fill in.

MORTALITY

In 1923, Miles reported a series of 116 cases of carcinoma of the rectum with a mortality of 25 per cent. When the series were divided at the year 1914 so as to separate operations which were done under chloroform and ether from a later series done under spinal anesthesia and nitrous oxide-oxygen, there was found to be a mortality of 36 per cent in the former groups, as compared with 9.4 per cent in the latter. The latter mortality rate certainly compares favorably with that of the Kraske operation, the mortality of which, in the hands of many operators, varies between 11 and 15 per cent. From my own experience with this type of operation, I feel quite confident that the mortality rate can be held to 10 per cent or better.

My own series is not large. To January, 1928, it comprised fifteen cases in which the one-stage, combined abdominoperineal operation had been employed. In this series there has been one death—a mortality rate of 7 per cent. The percentage of operability was 65. The longest postoperative course to date has been two and a half years. In this series only one patient has thus far shown evidence of recurrence. Another three years must pass before the true end-results can be reported.

COMMENT

In brief, my contention is that a patient will stand a little longer operation far better than he can stand infection, which is always a potentiality in the two-stage operation. Blood transfusion soon eliminates shock, but recovery from infection is not so easily attained.

Euclid Avenue at Ninety-Third Street.

MENTAL DISTURBANCES FOLLOWING OPERATIONS FOR CATARACT *

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It has been estimated that in from 2.5 to 3 per cent of all cases of cataract some mental disturbance develops following the operation. Numerous authors have published reports of cases of dementia, others cases of delirium, and others cases of acute mania. These definite varieties of mental imbalance, as their name indicates, are varying degrees of the same process. Some have asserted that such mental disturbances are not more common after cataract operations than after other surgical procedures; but I am firmly convinced, from my own experience, that operations on the eye involving a bandaging of both eyes are much more likely to be followed by varying degrees of mental imbalance than other surgical procedures performed under like conditions but without a blindfolding of the patient, especially in view of the fact that most cataract operations occur in those past middle life and often in the very old and feeble. I think that all ophthalmic surgeons will concur in this belief and will agree that the blindfolding of both eyes and the age are the principal elements in the cause of these mental disturbances in patients who are anxiously awaiting the outcome of an operation on which their future vision may depend.

The various degrees of mental instability may occur any time from a few hours after the operation to several days following. They most commonly occur on the first or second night after the cataract operation. The patient often wakes from a sound sleep in the middle of the night, is unable to place himself, becomes panic stricken, loses his mental balance, and becomes delirious or actively maniacal. The dressings may be torn off and the patient may leave his bed and even run out of the hospital in his night clothes, as has happened once in my experience. Sometimes the patient becomes simply demented and does not recognize the nurse, physician, or even friends. Occasionally dementia becomes permanent and the patient has to be confined in an institution for the insane. This deplorable outcome, however, is extremely rare as the majority of patients with postoperative dementia, delirium or mania can be quickly cured, though occasionally not until serious injury has been done to the operated eye.

Most of these cases occur among patients operated on in hospitals. Bruns [1] has pointed out that in his experience no cases occurred in ambulatory patients. Harbridge [2] reports seven operations for cataract in patients over 80, and four of these had postoperative delirium and one acute mania, indicating that such untoward complications are more common in elderly persons. Aubrey and Bretagne [3] recently reported several cases of dementia, and one patient so injured the operated eye that it became infected and had to be enucleated.

Very little need be said as to the symptoms, for the terms alone imply the symptoms which arise in those with actual mental imbalances. One must also recognize the large number of patients with cataract who, while

* Read before the Section on Ophthalmology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

1. Bruns, H. D.: Ambulant After-Treatment of Cataract Extraction, Postoperative Delirium, Tr. Am. Ophth. Soc. **14**: 473, 1916; Ann. Ophth. **25**: 718, 1916.
2. Harbridge, D. F.: Senile Cataract Extraction with Complications, Ann. Ophth. **23**: 58, 1914; Ophthalmology **10**: 466, 1914.
3. Aubrey and Bretagne: Delirium Consecutive to Cataract Operation in Aged, Ann. d'ocul. **163**: 217, 1926.

they have no actual mental instability, are yet more nervous, frightened, and less their normal mental selves than usual. These patients are perfectly conscious and realize their whereabouts, but the usual dread with which cataracts are always viewed has made them overanxious, and often restless, with more or less insomnia. It is easy to understand why the dread of possible blindness may bring about these minor degrees of mental instability. Therefore it is important to consider a complication that may occur in from 2.5 to 3 per cent of all cataract operations and to give the treatment a careful study.

PREVENTIVE MEASURES BEFORE AND AFTER OPERATION

It seems to me that the most important phase in the treatment of the condition lies in its prevention, and this will be taken up first. Too much stress cannot be laid on a study of the patient's mental condition prior to operation, and all efforts possible should be made to make this as good as possible up to the time of the operation and during its performance. The establishment of a mutual feeling of confidence between the physician and the patient is of major importance. A careful explanation to the patient of the nature of cataract and a creation on the part of the patient of a feeling of optimism should be worked for.

I have several times been accused of promising my patients too much. I acknowledge that the accusation is justified and I firmly believe in giving patients all the courage possible. At the same time, it is not wise to promise patients too perfect a restoration of vision, as the disappointment which may come later may bring on a late development of dementia.

A series of carefully conducted examinations of the patient's other organs, which may have a bearing on the production of the cataract and the proper healing of the wound of operation, gives the patient confidence in the physician and aids in improving his mental condition. Teaching the patient how to behave at the time of operation is of great benefit. Assurance that ether anesthesia is not necessary and that with well administered local anesthesia pain is not to be feared will add to the patient's mental tranquillity.

After the patient has entered a hospital prior to a cataract operation, what can be done to lessen his nervous and mental excitability if such becomes apparent? The confidence inspired by the well chosen words of encouragement spoken by all who come in contact with the patient is most helpful, and there are several quieting drugs at one's command, of which the bromides, barbital or phenobarbital, are the most used. Some surgeons employ as a routine one of these drugs. I have not advocated the routine use of quieting drugs, as frequently a patient who comes to operation is known beforehand to be of a phlegmatic and tranquil disposition, so that no possible postoperative mental complication need be feared. Such patients, however, are in the minority, and in the larger class of those who give evidence of nervousness and excitability a dose of barbital or phenobarbital on going to bed the night before operation and again the first thing the next morning is very helpful. Formerly it was my custom to give a subcutaneous injection of morphine a half hour prior to the operation, but as this occasionally excited vomiting the practice was discarded. Quieting drugs followed by a thorough and complete local anesthesia at the time of operation are the things most to be relied on. In some cases in which the patient is apparently on the verge of dementia prior to operation, a cataract operation conducted in the home of the patient is often the best insurance of a successful result.

Preventive treatment after operation is of great value. Let us consider for a moment the patient's mental state the first night after a cataract operation. Perhaps he has received some drug to help him sleep. He wakes up in the middle of the night, is dazed, does not perhaps recall what has just happened to him, tries to orientate himself, finds that he cannot see, and is quickly thrown into a condition of panic. It is just at this point that the greatest aid in prophylaxis comes in. The touch of a soothing hand and the hearing of a quiet, firm voice will immediately quiet the panic and give the patient confidence. No patient with cataract, in my opinion, should ever be allowed to go through the first night after the operation without a nurse sitting beside the bed. Even ward patients should be given this protection, and the special nurse employed for this purpose should be strictly enjoined never to leave the patient's bedside without first calling somebody to her place of trust. It is quite necessary that the nurse or attendant who has this watchful position should be able to converse in the language understood by the patient.

Pain after cataract operation is one of the factors in making a patient restless, and if the patient has been cautioned that undue movements may jeopardize the eye this restlessness may easily produce in the patient a condition of panic, so that no patient should be allowed to suffer pain following the operation. For the relief of pain and discomfort, which in my opinion is very much more common following the numerous injections of procaine hydrochloride practiced at the present day to insure a painless operation, nothing I have tried has been so efficacious as the hypodermic injection of $\frac{1}{12}$ grain (6 mg.) of morphine with $\frac{1}{200}$ grain (0.3 mg.) of scopolamine. This may be repeated two or three times during the night if necessary. The pain is never so great but that the small dose of morphine will control it, and the scopolamine lessens a nervous tension which might later go on to a disordered mental state. Many patients are made apprehensive by the stories they have heard of the long enforced recumbent posture. Reassurance as to this before the operation, and the use of a bed rest ten or twelve hours after for the relief of backache, remove this source of mental distress. Turning the patient onto the unoperated side the first night gives much relief. These procedures, if carefully carried out, are not likely to harm the eye when the modern methods of handling a conjunctival flap are employed.

FORMS OF TREATMENT

If, in spite of all these painstaking prophylactic measures, a patient does become demented, delirious or maniacal, what is the best form of treatment? There is nothing so efficacious and often so promptly remedial as a removal of the bandage from the unoperated eye, particularly if the unoperated eye has sufficient vision for the patient to take in his surroundings and to see the face of the nurse or of some member of the family who has been called in. Most authors who have written on this complication of cataract work mention uncovering of the unoperated eye. This accounts for the freedom from postoperative mental disturbances which has been previously noted in ambulatory cases in which only the operated eye was covered.

Some of the later manifestations of mental disturbance may be warded off by allowing the patient to look with the operated eye on the third day and convincing him

that he can see with it. I frequently hold up a watch with a plus glass in front of the eye, often finding that the patient can tell time. This relieves his mind as to the ultimate outcome. Frequently, after such a convincing of the patient, there is an immediate relaxation in the nervous tension followed by a good night's sleep.

In one of my cases of cataract removal in which a man had lost one eye from a golf injury and had had a high amputation of one leg following diabetic gangrene, it was necessary to take the dressing off from the operated eye on the third day and allow him to see around the room, which immediately quieted a very severe delirium. In this case, on the fourth day a strong cataract glass was put into the old frame of his glasses and applied, and this allowed him to see coarse print. Until these procedures were followed the patient had been most actively maniacal, using very bad language and requiring considerable restraint, though a preliminary iridectomy had been performed three weeks earlier with no after-trouble. In such cases the physician himself may be the only one who can control the patient, and I have several times spent a night at the patient's bedside with great benefit to the patient's mental condition.

Those actively maniacal are often helped by the use of scopolamine and morphine, as already described.

VALUE OF PROTECTIVE DRESSINGS

Frequently, in a patient otherwise doing well, some accidental injury to the operated eye may produce a hemorrhage into the anterior chamber which temporarily blots out the vision and throws the patient into a very depressed mental state. It is therefore extremely important that some efficacious protective dressing should be applied so that the patient cannot in any way injure his own eye. It is my custom to keep the eye protected at all times when the patient is likely to fall asleep for at least three weeks after the operation, leaving the eye open and exposed only during the patient's waking hours and after the sixth day. In this connection it is well to point out the fact that attempts to put drops into the eye by inexperienced attendants are also fraught with the danger of opening the wound or causing a hemorrhage or an iris prolapse with the resulting extra mental distress.

82 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

DR. JOHN E. WEEKS, New York: I am in full accord with the statement that "the blindfolding of both eyes and the age of the patient are the principal elements in the cause of these mental disturbances." Change from usual environment and fear regarding outcome are, undoubtedly, also contributing elements. In my experience postoperative dementia, after operations for cataract, has not occurred in patients less than 50 years of age. Usually, the patient has been much older. In one case the patient was 86 years of age. The longest time of onset in my service was four days. The mental disturbances noted varied from a quiet dementia with incoherent mutterings to acute mania with manifestations of violence more or less pronounced. Various degrees of mental disturbance, not amounting to dementia, frequently occur, such as restlessness, insomnia, depression and undue anxiety regarding results.

The diagnosis of the condition is usually easy but it may be confounded with diabetic coma, or with delirium tremens, in their incipiency. It is desirable to recognize a departure from the normal mental condition of a patient after cataract extraction at the earliest possible moment, and since the surgeon cannot remain long beside the patient, a competent nurse, properly instructed, should be in constant attendance during the first twenty-four hours at least, and thereafter sufficiently long and often to note any change in the patient. The surgeon should thoroughly acquaint himself with the physical and mental condition of the patient, also with his habits, particularly with regard to the use of alcoholic beverages. I have seen delirium tremens develop in three patients after operation, in one after enucleation and in two after the extraction of cataract. In patients having the habit of taking alcoholic beverages as a routine, I have allowed them to continue taking their usual tipple, somewhat reduced in quantity, during their stay in the hospital, and have thought that by so doing mental disturbances were averted, in some of the cases at least. Allaying apprehension, preventing the patient from hearing injudicious remarks, gaining his confidence and buoying up his hopes by optimism on the part of the surgeon, so far as the facts in the case will permit, are valuable as preventive measures. Except in the decidedly phlegmatic patients, I am now accustomed to give an anodyne one-half hour before operation. The anodyne consists usually of morphine, from ⅙ to ¼ grain (11 to 16 mg.) and scopolamine, 1/200 grain (0.3 mg.) given hypodermically. The local anesthesia must be complete. The anodyne not only lessens the sensibility of the sensory nerves during the time of the operation but also quiets the patient after operation, induces sleep and tides the patient over that distressing period when the effect of the local anesthethic is wearing off. Nausea after morphine and scopolamine is much less frequent than after morphine alone. Treatment after postoperative mania has developed has been well described by the author.

DR. JOHN O. MCREYNOLDS, Dallas, Texas: Every syllable that Dr. Greenwood and Dr. Weeks uttered has been borne out by the experience of us all. The only difficulty is that many of the severe cases may develop without giving us any kind of warning. When cases come on gradually we may be able to adjust ourselves to their manifestations and avert disaster; but those that come on suddenly, without giving any warning, are the ones that give us the greatest concern. I am in hearty accord with what Dr. Weeks has said about not disturbing the habits of the patient too much. In my individual observation and experience, old men give more trouble than old women, because they are not accumstomed to lying still. Women have been accustomed to being still in one position, and one can anticipate what they will do after an operation, better than with old men. So I am in the habit of telling these aged patients that whatever habits of life they may have formed that contribute to their comfort and well being should not be broken immediately after operation, unless these habits are distinctly vicious in character. It makes them feel very much more at home to enjoy the relatively harmless privileges to which they have been accustomed. I have also observed another fact mentioned by Dr. Greenwood and by Dr. Weeks, and that is that very violent physical exertion on the part of the patient will not necessarily destroy the eye. This is especially true when the wound has been closed by sutures. This enables the patient to go about with much more confidence, and at an earlier period.

DR. S. B. MUNCASTER, Washington, D. C.: I want to give an account of the trouble I had in operating for an acute attack of glaucoma in both eyes of a patient with dementia. The patient was 80 years old. When I was called, I found her with both hands over the eyes and making so much noise that she could be heard a block away. She had heart trouble and I had two trained nurses in constant attendance and was using miotics for one day, but without any results. I had a straight jacket made of thick cotton with long sleeves, so that after the arms were placed in the sleeves they could be fastened around the body. The patient was held in bed by a trained nurse and two assistants. Her physician held her head and my assistant gave me the instruments. I operated on both eyes and gave a hypodermic of codeine. The patient was asleep in thirty minutes and the bandage was removed the following day so that she could see, and then was replaced for two or three days. She did not have any bad results afterward.

DR. MARY BUCHANAN, Philadelphia: I operated on an aged colored man for cataract, after a preliminary iridectomy, during the course of which he was an exemplary patient. His fellow eye was blind from glaucoma following cataract extraction eight years before. His behavior was perfect until after the

delivery of cataract, when he suddenly sneezed and the remains of the capsule and some vitreous were extruded. A roller bandage was applied and he was put to bed at 1 p. m. in a private room. At 5 a. m. the head nurse telephoned, "Your patient is crazy and we are sending him to the Philadelphia General Hospital." I replied, "No, send him home, but give him a hypodermic first." A second message said, "He fought against a hypodermic and climbed through the window and is standing on a sloping shed, holding onto the window sill with both hands." When the policeman arrived he seemed pleased and climbed back into the room, with the bandage pushed up off his eyes. He refused to go home in a patrol wagon, but walked eight blocks between an orderly and the policeman, took a trolley car and then walked another block to his home.

At 8 a. m., when I arrived, he was rational and was sitting quietly in a chair. I asked him why he had misbehaved and he replied, "Well, you didn't come, I was all alone and they were going to take me for a 'stiff'; they tried to put a number on my arm." I further asked him why he had pushed the bandage off when this was his only chance for sight and he answered, "For to see—I can see you now!" And he could! The wound had healed by first intention in seventeen hours. He had 5/9 vision with correction and retained it for several years.

DR. WILLIAM H. WILDER, Chicago: A number of years ago I operated in a case of mature cataract in one eye, the other eye being blind, and in order to safeguard the operation I did a preliminary iridectomy. The patient in the night became nervous, didn't know where he was, got out of bed, tore off the bandage, and started for a walk. He came down the front stairs of the hospital and missed the last step, and you know what a jolt one gets under such circumstances. His eyes snapped together and with the help of that little snap of the lids through the keratome incision in the periphery of the cornea was made a beautiful intracapsular extraction, for the intern who met him at the foot of the stairs picked the lens off his shirt front. He made an uninterrupted and uneventful recovery with excellent vision. I am not recommending this as a new method or new technic for intracapsular extraction, but simply to introduce the word or two I have to say on this subject of mental disturbances following operation. They may occur in old people after general operations, and possibly do occur rather frequently; but the reason they occur so frequently in cataract surgery is that we feel it necessary to bandage both eyes and hence the patient is blinded. Some of these old people become quite childish, and on waking from the fitful sleep of the first night after the excitement of an operation have night terrors like some small children who awaken in the dark and cannot realize where they are. Many of us can recall similar experiences in our chilhood. Hence the suggestion that an important thing in the treatment is to let these patients see. Take the bandage from their eyes, the unoperated one if that has some vision, and have the nurse or the intern or some responsible person sit up all night if necessary to reassure them. They should not be restrained too much but may be allowed to sit up in bed or even in a chair. Several years ago I saw a woman who developed a mania that lasted for four or five days. She fell out of bed the first night, fortunately doing no harm to the eye, but it was a long time before we could relieve her mental anxiety and alarm. I had in consultation one of our most astute neurologists and psychiatrists. He thought that the nerve tissues were dehydrated to such an extent as may occur in cases of acute mania. We began to give her water by rectum slowly and she gradually recovered her mental equilibrium. It was suggested that it might be wise to give our patients who are lying in bed, who are not often thirsty, plenty of water, and now it is a routine practice to have the nurse give these patients water between meals, whether they are thirsty or not. I do not know what value it has, but it can do no harm and on general principles might be helpful.

DR. ALLEN GREENWOOD, Boston: Dr. Wilder uses the term "night terrors" where I use the term "panic." I believe they are the same thing. The important thing after a cataract operation is to have some one beside the patient constantly who can reassure the patient as to his condition. I never allow a patient with cataract to be without some one beside him for the first forty-eight hours. Pain after a cataract operation may precipitate a restlessness on the part of the patient, and I want again to call attention to the use of morphine and scopolamine as used in general surgery for several years. A subcutaneous injection of 1/12 grain (5 mg.) of morphine and 1/200 grain (0.3 mg.) of scopolamine produces a very comfortable twilight sleep. I very seldom make patients lie absolutely still more than a half hour after the operation. I allow a turn from side to side in the bed, as Dr. Friedenwald has suggested. I do not let them sit up on the way back from the table or for the first hour or two, but after that I like them to change their position in bed. I see no objection, especially when a good conjunctival flap has been secured.

EARLY ROENTGEN OBSERVATIONS IN DUODENAL ULCER*

EDWARD L. JENKINSON, M.D.
CHICAGO

Are we, as roentgenologists, waiting too long before making a diagnosis of duodenal ulcer? Are we right in waiting until there is a definite deformity of the bulb before making a diagnosis?

The work I am here presenting I do not claim to be original, nor do I believe it to be conclusive. For the past five years in my gastro-intestinal work, many observations have been made relative to the action of the duodenum under the fluoroscope.

That there are many patients presenting regular duodenal bulbs, with definite histories and symptoms of duodenal ulcers, I believe will be admitted by all. With this fact established, I started this work with the idea of trying to obtain fluoroscopic observations that might be of value in arriving at a diagnosis.

Many things were thought of, and the possibility of a lesion in the gallbladder, colon or appendix was considered. The histories and symptoms of these patients were carefully studied and the stomach analyses were also given consideration. The internist sends these patients to the department for a gastro-intestinal examination. If the diagnosis is based on a deformed duodenal bulb, the results will be negative in a great many instances. This is especially true in the early cases. The internist will ignore the observations and will put the patient on an ulcer regimen. In most cases, the patient will obtain prompt relief of the symptoms and, if he continues to follow the physician's orders, will recover.

I am of the opinion that the proper time to treat these patients is before they have developed a deformity. If they are properly treated immediately, they will in most instances never develop a deformity of the duodenal bulb. This point has been demonstrated in a number of cases.

Some years ago a physician came to me for a gastro-intestinal examination. During the examination of the stomach and duodenum, I noticed a peculiar irritability of the bulb. The bulb was regular in outline in all directions, but there was a tendency for it to stay empty. During the examination it was very difficult to get the bulb to remain full long enough for a careful study. Only by pressure with the hand could the bulb be kept filled and carefully scrutinized. There was absolutely no deformity. During the course of the examination there was a tendency toward puddling or piling up of

* Read before the Section on Radiology at the Seventy-Ninth Annual Session of the American Medical Association, Minneapolis, June 15, 1928.

the barium sulphate in the second and third parts of the duodenum.

During the fluoroscopic examination, the stomach was hypertonic. The peristaltic waves showed periods of hyperactivity and hypo-activity. This finding is not constant, the peristaltic waves being normal in many cases. The pyloric antrum was very spastic at times but later became relaxed and patent. There was not a deformity of the pylorus at any time. The spasticity of the pylorus in these cases is usually temporary but periodic. At the end of the examination, a diagnosis of duodenal ulcer without obstruction was made.

The history and symptoms, I afterward learned, were quite typical of duodenal ulcer. The physician later went to one of our leading clinics for an examination. After the gastro-intestinal examination, he was told that he had no ulcer but did have a duodenitis. The patient did not go on a diet and ignored the symptoms for the next three months. The symptoms became worse and he again came to me for a gastro-intestinal examination. At this time, he had a definite deformity of the duodenal bulb which could be demonstrated both fluoroscopically and roentgenographically. The physician was finally convinced of the correctness of the diagnosis and placed himself under a very rigid ulcer regimen, with subsequent relief of his symptoms.

For the past three years I have diagnosed all cases showing the conditions mentioned as duodenal ulcer. If the patients are treated they improve, and later at fluoroscopic examination they do not show any deformity. If they are neglected they will later show a deformity. I have observed this in many patients and feel quite sure that the observations are of diagnostic value.

During the first part of my work I was inclined to believe that the gallbladder was the cause of these symptoms and fluoroscopic observations. After the advent of the Graham-Cole test, all patients were examined fluoroscopically and gallbladder disease could not be found. It is probable that I may have missed some of the early gallbladder lesions, as it is possible even in the face of normal visualization and normal emptying to have a cholecystitis. The fact that these patients improved promptly and finally became symptom-free on an ulcer regimen causes me to feel quite sure that the lesion is in the duodenum and not in the gallbladder.

Last year in Montreal, I discussed the subject with Dr. A. B. Moore of the Mayo Clinic. I asked him whether or not he thought the observations were of any diagnostic value. He was of the opinion that they really meant something and encouraged me to continue the work and report the conclusions at the annual session of the American Medical Association.

During the first part of March, I did a complete gastro-intestinal examination on a patient with a typical history of ulcer. During the fluoroscopic examination, the stomach was rather hypertonic. The peristaltic waves were not unusually active. The pyloric antrum was temporarily spastic, but regular in outline. The duodenal bulb was spastic and irritable and had a tendency to remain empty. The duodenal bulb was hard to fill and to examine closely. There was also a puddling in the second part of the duodenum. The diagnosis made at the end of the examination was duodenal ulcer without obstruction.

On examination of the films, the bulb was found to be definitely normal in outline. In the light of these observations I hesitated to make a diagnosis of duodenal ulcer and called the bulb normal.

Two months later, the patient went to the Mayo Clinic and a diagnosis of duodenal ulcer was made. The following week the patient returned to me and was again examined and a typical deformity of the duodenal bulb was found. The stomach was hypertonic and the peristaltic waves were very active. The observations at the first examination were sufficient to justify a diagnosis of duodenal ulcer. In this instance, I lacked the courage of my convictions, and I believe that, if I had made the diagnosis and the patient had been placed on an ulcer diet, the deformity of the bulb might never have developed.

These cases, and many others just as typical, make me believe that these observations are of great diagnostic value.

Many observers will say that the bulb often cannot be filled during the fluoroscopic examination, and later during the roentgenographic examination a normal bulb can be readily and repeatedly demonstrated. I will admit that this fact is true, but I believe also that any bulb that will not fill during a fluoroscopic examination in all positions, and which is spastic, is pathologic. If the condition of the bulb is irritable, and is accompanied by pyloric spasm and puddling in the second part of the duodenum, one can feel quite certain of an early duodenal ulcer. In most cases this will be proved at a later examination if the patient is not treated for an ulcer.

SUMMARY

As a result of this study, I believe that the following conditions are at least suggestive of early duodenal ulcer.

1. An irritable and spastic duodenal bulb which has a tendency to stay empty.
2. Difficulty in keeping the bulb filled in order to observe it closely.
3. The ability of the bulb to fill and to become regular in outline under pressure with the examining hand.
4. Temporary spasm of the pyloric antrum, the antrum being regular in outline.
5. Peristaltic waves, which may be active in some cases and normal in others.
6. Puddling or overflowing in the second part of the duodenum.

One should not let the roentgenographic evidence outweigh the fluoroscopic observations. It is well to have the courage of one's convictions.

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ABSTRACT OF DISCUSSION

DR. E. P. PENDERGRASS, Philadelphia: Several conditions will cause an irritable and spastic duodenal bulb: 1. Simple duodenitis of undetermined origin. 2. Advanced duodenitis of undetermined origin. In this condition one usually observes a spasm of the prepyloric region in addition to that of the duodenum. 3. Duodenitis caused by the intestinal parasite hookworm. Henderson called attention to this condition, and he regards the antiperistalsis of the second and third portions as diagnostic. He also stated that one should exclude hookworm disease before making a diagnosis of duodenitis or duodenal ulcer. 4. Early duodenal ulcer, or the so-called clinical ulcer. 5. Large duodenal ulcer. It has always been my impression that one does not find pylorospasm associated with duodenal ulcer unless the ulcer extends to the pylorus, or unless there was a coexisting duodenitis and gastritis. If we can accept this as being true, I cannot see how a small or an early duodenal ulcer can cause spasm of the pyloric antrum. If my premise is incorrect and one does have spasm of the pylorus associated with duodenal ulcer, then another difficulty arises; namely, the differential diagnosis of duodenitis and early duodenal ulcer.

Clinically, these conditions have similar symptoms, and the roentgenoscopic and roentgenographic observations may be identical. I agree with Dr. Jenkinson that an early or mucosal ulcer of the duodenum will cause an irritable bulb, observed best during the roentgenoscopic examination. Frequently, there will not be a filling defect of the duodenal bulb in the roentgenogram. I have not observed puddling in the second portion of the duodenum or spasm of the pyloric antrum in early duodenal ulcer. When puddling of the second portion occurs, I assume that it is caused by a congenital veil, adhesions or ulcer. When spasm of the prepyloric region occurs, I feel that either the duodenal ulcer extends to the pyloric ring or there is an associated gastritis. I should like to ask Dr. Jenkinson whether he feels that duodenitis is a possible precursor of duodenal ulcer.

DR. A. B. MOORE, Rochester, Minn.: I have been observing such cases as Dr. Jenkinson described for several years, and I feel sure that duodenitis is just as definite a roentgenologic entity as it is a pathologic entity. It seems unquestioned that duodenitis is associated with every duodenal ulcer. The probabilities are that in every case of duodenitis there are minute ulcerations which will not be discovered roentgenologically or surgically, and which will be demonstrated by the pathologist only if the entire wall of the duodenum can be removed and examined closely. As Dr. Jenkinson has said, the most reliable sign is the irritability of the duodenal bulb. We see this as a shading of the barium in the duodenum when the bulb is distended by manual palpation. It fills easily but when pressure is removed it empties immediately. The barium gives one the impression of not being of deep concentration and has a hazy appearance. I think it important to state that duodenitis does not necessarily represent an early condition. Persons are seen who for years have had typical symptoms of peptic ulcer; fluoroscopically they show signs of duodenitis either with or without a crater. At operation the duodenal bulb may appear normal although it feels thick and edematous. If the surgeon will excise the anterior half of the duodenum, typical duodenitis will be found. This I think is further proof that we are probably dealing in all peptic ulcers with conditions that begin as an infiltration. They break down at one point and heal; the patient has a remission; then they break down again and the symptoms recur. I agree with Dr. Jenkinson that we do not see pyloric spasm associated with duodenitis, nor, in my experience, is it common in duodenal ulcer. Gastric ulcers obstruct by pylorospasm, duodenal ulcer by cicatricial contraction.

DR. E. L. JENKINSON, Chicago: I cannot answer Dr. Pendergrass in regard to duodenitis: I do not think that I am competent to do so. This is a question to be settled by the pathologist. Duodenitis may be a forerunner of duodenal ulcer. Practically all patients with duodenal ulcer have gastritis. Dr. Straus asserted that in most of these cases gastrojejunal ulcers follow gastro-enterostomy. He says that these cases have not been treated medically long enough to be entirely free from the gastritis and therefore gastrojejunal ulcers follow the gastroenterostomy. Puddling in the duodenum is one of the signs about which I do not feel entirely satisfied. I think it is present in other conditions, but I have noticed it in all these cases that showed what I thought were early duodenal ulcers. About the small fleck, the chances are that Dr. Moore is right. There may be a small deformity in all these cases, but up to this time I have not been able to identify it.

The Erythrocyte.—From the time that Ehrlich (1885) noted the three distinct basophilic conditions in erythrocytes, controversies have waged on their character and significance; but for many years the trend of opinion has been toward the view that punctate basophilia, diffuse polychromasia, and reticulation are expressions of the same process. Cesaris-Demel (1907) concluded that punctate basophilia and reticulation were identical, and Key (1921) agreed that the basophilic substance in the three conditions was the same. Brookfield (1928) believes that the stippled cells in lead poisoning are immature cells (reticulocytes and polychromasic cells) altered by the toxic action of lead. His results tend to confirm the work of Hawes (1909) and of Key (1924), in which the close numerical relationship between stippled and polychromasic cells and reticulocytes was definitely established.—Cooke, W. E.: *Brit. M. J.*, Nov. 3, 1928.

Clinical Notes, Suggestions and New Instruments

AGRANULOCYTIC ANGINA *

HERBERT W. DASSE, M.D., CHICAGO

As recorded cases of agranulocytic angina are not numerous, the present one should be of interest, especially in view of the association of *Bacillus pyocyaneus*.

REPORT OF CASE

Mrs. E. R., a white woman, aged 60, was admitted to the Durand Hospital, Dec. 21, 1927, at 10 p. m., because of diphtheria. The condition started four days previous to admission with symptoms of an acute rhinopharyngitis, chills, fever, sore throat, vomiting and marked prostration. On the day of admission hoarseness developed with marked sore throat, especially on talking and swallowing. The past history was negative.

The patient was poorly nourished, acutely ill and in a semicomatose condition, from which she could be partially aroused. The blood pressure was 140 systolic and 35 diastolic; the temperature was 104 F. and the respirations were 28. The skin was subicteric. There was no icterus of the conjunctiva and the pupils reacted to light and in accommodation. The breath had a peculiar foul odor and the tongue was coated a dirty gray. There was a grayish black exudate on both tonsils, the uvula and extending over the pillars onto the soft palate, which could be scraped off easily, leaving a bleeding, ulcerated surface. The sputum was slight in amount and was blood tinged. The cervical lymph glands were barely palpable and there was no thyroid enlargement. There was some dulness to percussion over the right lower lobe with a few crepitant râles. The heart borders were within normal limits and there were no murmers. The abdomen was scaphoid and the liver and spleen were not enlarged. There were two small superficial ulcerations on the skin in the upper left quadrant of the abdomen about 5 mm. in diameter and 3 mm. deep. The ulcers were covered with black crusts and were surrounded by an area of hyperemia. There was no discharge or ulceration of the vulva or vagina. Smears made from the throat were negative for fusiform bacilli and spirilla. The patient was given 40,000 units of diphtheria antitoxin intramuscularly. One hour after entrance there was severe epistaxis which lasted about two hours and was controlled by packing.

December 22, the blood picture was as follows: red blood cells, 1,830,000; white blood cells, 6,200; hemoglobin, 45 per cent; the differential count was 90 per cent lymphocytes and 10 per cent polymorphonuclears. The blood platelets were decreased, but the bleeding time was normal and the clot retracted. Sedimentation time was about two minutes. The throat cultures were negative for diphtheria bacilli. Blood agar plates and Loeffler tubes contained a diffuse blue-green growth in twenty-four hours which was identified as *B. pyocyaneus* in almost pure culture. The patient's serum failed to agglutinate fresh cultures of *B. pyocyaneus* in a dilution of 1:10. About noon the patient had a severe chill with the temperature rising to 105.6. A large amount of blood-stained mucus was coughed up. December 23, the blood culture plates were sterile. The leukocytes dropped to 5,000 with no polymorphonuclears. The blood Wassermann reaction was negative and the urine contained some albumin. The patient's condition became worse; the temperature was 104, the pulse 120 and respirations 28. Convulsive seizures started in both arms and legs and her mental condition became worse. Death occurred, December 23, on the sixth day of the illness. Autopsy could not be obtained.

COMMENT

This case resembles very much the case of agranulocytic angina first reported by Dr. Werner Schultz in 1922, in which there was a severe infection leading to death in a few days with an abrupt onset accompanied by chills, high fever, prostration, ulcerogangrenous stomatitis, and marked sore throat. There was a leukopenia of 5,000 with an absence of granulocytes. There was no lymphoid or splenic hyperplasia. Throat cultures gave

* From the Durand Hospital of the John McCormick Institute for Infectious Diseases.

an almost pure culture of *B. pyocyaneus*. The severe anemia with reduction of platelets and a hemorrhagic tendency were not described by Dr. Schultz. Injections of living cultures of *B. pyocyaneus* subcutaneously into guinea-pigs produced a slight reduction in the white blood count and always a relative reduction of the granulocytes from 68 per cent to 30 per cent. A local ulcer formed with a center of necrosis and a slight inflammatory border, which healed rapidly in about ten days when the blood count was about normal.

THE EFFECTIVE RANGE OF IODINE DOSAGE IN EXOPHTHALMIC GOITER: PRELIMINARY REPORT *

WILLARD OWEN THOMPSON, M.D.
Fellow of the National Research Council
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AND
PHEBE K. THOMPSON, M.D.
BOSTON

An attempt is being made to determine the effective range of iodine dosage in exophthalmic goiter. In twelve out of thirteen patients at rest in bed in a hospital, as great a reduction in basal metabolism was obtained with 1 drop of compound solution of iodine (about 6 mg. of iodine) daily as with much larger doses. In eight out of twelve patients more recently studied under the same conditions, half a drop of compound

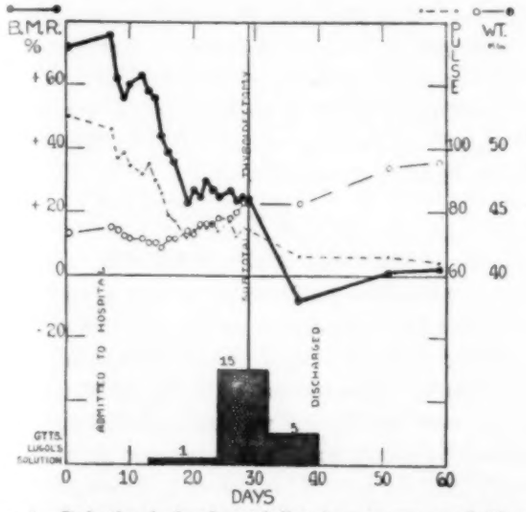

Chart 1.—Reduction in basal metabolism in a woman, aged 28, with a typical case of exophthalmic goiter as a result of the preoperative administration of 1 drop of compound solution of iodine daily. Fifteen drops daily did not produce any further reduction. Dark areas in this and subsequent charts denote periods of treatment with compound solution of iodine.

solution of iodine (about 3 mg. of iodine) daily was as effective as were larger doses. Three patients showed no response to any dose, and one showed a slightly lower metabolic level during the administration of 30 drops daily.[1]

The usual routine has been to wait until a resting level of basal metabolism was reached. Compound solution of iodine, one-half or 1 drop daily, was then begun and daily observations of metabolism were made. When the metabolism again reached a level, much larger doses (usually 30 drops daily), were given, in order to make sure that no further decrease occurred.[2] Data obtained in two typical cases are plotted in charts 1 and 2.

The minimum dose that will produce a maximum reduction in basal metabolic rate has not yet been definitely determined. It appears in most cases, however, to be between about one-fifth drop of compound solution of iodine (1.3 mg. of iodine) and about 1 drop (6.3 mg. of iodine) daily.

There are observations which suggest, but do not prove conclusively, that the minimum dose is perhaps a little less when a patient is at rest in bed in a hospital than when the same patient is at home occupied with her daily routine (chart 3). This conclusion is also suggested by the fact that a somewhat greater proportion of outpatients than of house patients (viz.,

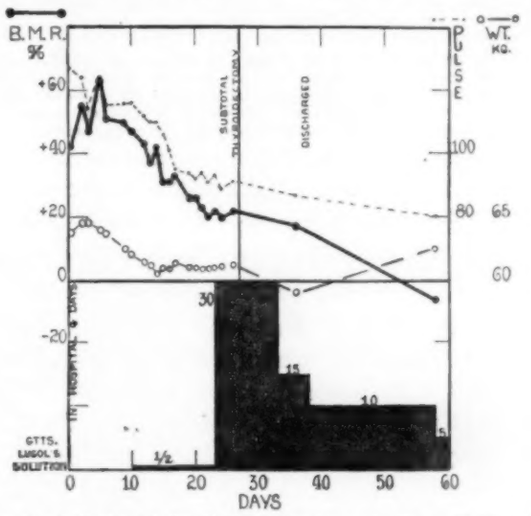

Chart 2.—Reduction in basal metabolism in a woman, aged 56, with a typical case of exophthalmic goiter as a result of the preoperative administration of half a drop of compound solution of iodine daily. Thirty drops daily did not produce any further reduction.

five out of eighteen) required more than 1 drop of compound solution of iodine daily to cause a maximum reduction in the basal metabolic rate.

When it is considered that 1 drop of compound solution of iodine contains about twenty-four times the amount of iodine computed by Plummer [3] to be destroyed in the form of thyroxin daily, the results obtained with this and smaller doses are not surprising.

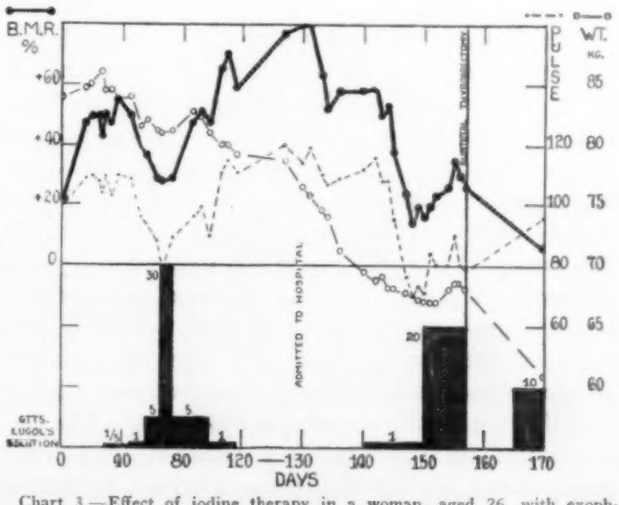

Chart 3.—Effect of iodine therapy in a woman, aged 26, with exophthalmic goiter. The daily administration of 1 drop of compound solution of iodine produced a maximum reduction in basal metabolic rate when the patient was in the hospital, but was insufficient when the patient was home.

CONCLUSION

With patients at rest in bed in a hospital, as great a reduction in basal metabolism is usually obtained with from one-half to 1 drop of compound solution of iodine daily as with much larger doses.

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* From the Thyroid Clinic and Metabolism Laboratory of the Massachusetts General Hospital.

1. The average level of metabolism was about plus 48 per cent before the administration of 1 drop of compound solution of iodine (Lugol's solution) daily was begun and about plus 18 per cent after this dose had had its maximum effect. The corresponding figures for the half drop series were plus 40 and plus 24 per cent, respectively. The reduction in basal metabolism due to these small doses is as great as that produced by much larger doses (from 15 to 40 drops daily) in two series of cases previously reported from this clinic (Starr, Paul; Segall, H. N., and Means, J. H.: The Effect of Iodine in Exophthalmic Goiter, Arch. Int. Med. **34**: 355 [Sept.] 1924. Means, J. H.; Thompson, W. O., and Thompson, Phebe K.: On the Nature of the Iodine Reaction in Exophthalmic Goiter, with Particular Reference to the Effect of Iodine Late in the Course of the Disease, Tr. A. Am. Phys., 1928, to be published).

2. This is not an entirely satisfactory control, because the administration of small doses may interfere with the effect of larger doses subsequently administered.

3. Plummer, H. S.: The Thyroid Gland, part 2, St. Louis, C. V. Mosby Company, 1926, p. 80.

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SATURDAY, DECEMBER 1, 1928

SOME NEW FEATURES OF THE STUDY OF VITAMINS

While the place of the as yet undefined substances called vitamins in the human diet is being more widely recognized, their mode of action and other details of their physiologic functions continue to remain obscure. Confusing though the circumstance may be, there is nevertheless a growing and seemingly well justified tendency to postulate a multiplicity of vitamins. The antiscorbutic, the antirachitic, the antixerophthalmic, the antipellagric, the antineuritic and other unique properties of certain foods are apparently associated with different chemical substances that assume independent rôles in the body. The growing confusion need cause no more despair than the bacteriologist or his colleague the immunologist suffers over the problems of specificity of behavior on the part of the varied types of microbic enemies of mankind.

One of the earliest of the newly appreciated food essentials to enlist serious consideration was vitamin B. In its absence, certain well defined symptoms are likely to arise. Conspicuous among them is a form of polyneuritis such as is seen in certain manifestations of beriberi. The appetite frequently fails and, in the adolescent period, there is cessation or retardation of growth. The multiplicity of effects produced has led to repeated suggestions that more than one dietary essential may be involved, until at length it seems to be conclusively demonstrated that what was formerly designated as vitamin B comprehends at least two independent properties of food that are equally essential to well being.[1] The designation of the factors is still a matter of considerable debate among biochemists. In Great Britain the current usage refers to vitamins B_1 and B_2; in this country there is a growing tendency to assign new letters, F and G, to the individual factors so as to avoid the implication that they are fragments of a single compound. One of them (B_1, or F) unquestionably represents the long recognized antineuritic potency; the other (B_2, or G) is equally essential and has been designated by several writers as the antipellagric vitamin. The appropriateness of assuming that the protean manifestations of pellagra can be averted by any single food factor may well be debated.

In any event, the time has arrived when foods need to be reexamined with reference to their content of both F and G. Yeast contains both in considerable abundance; indeed, it has become possible to make separations of yeast fractions neither of which alone will promote well being and growth without the other, on an otherwise adequate diet. Wheat and its products are comparatively poor in the vitamin G fraction; hence it may properly be supplemented with sources of the lacking factor. Corn likewise appears to be relatively poor in the antipellagric potency.[2] According to recent studies,[3] milk shows reverse relations. Thus, Hunt and Krauss have found at the Ohio Agricultural Experiment Station in Wooster that milk from cows under winter feeding conditions is potent in the antipellagric vitamin (vitamin G) and relatively poor in the antineuritic vitamin (vitamin F). Again science has demonstrated that the conventional combination of cereal and milk has a nutritional justification as well as a gustatory one. Each food supplies something essential that the other lacks in adequate relative abundance.

1. The Composite Nature of Vitamin B, editorial, J. A. M. A. **89:** 2044 (Dec. 10) 1927.

IODIDE AND HEALTH

The extensive use of iodine in the prophylaxis of goiter has focused attention on the possible physiologic consequences of prolonged administration of this element. Under the conditions of prescription and dosage first proposed by Marine and his collaborators, clinical records of deleterious effects have not been recorded. Nevertheless, competent observers believe that a danger of malfunction of the thyroid structures through overdosage with iodides is always a possibility in the case of a few susceptible persons, so that caution should be exercised when indiscriminate distribution of iodine is likely to arise. In addition to the carefully regulated prophylactic dosage, widely practiced in relation to adolescents, the widespread use of iodized table salt, the introduction of iodides into potable waters, the proposed incorporation of the halogen into a variety of foods in a wholesale manner, and the active promotion of foods from particular districts or edible products of special character on the basis of exceptional richness in iodine are innovations. Cranberries from Cape Cod[4] and certain shell-fish from Japanese waters may serve as illustrations.

2. Hunt, C. H.: The Complex Nature of Vitamin B as Found in Wheat and Corn, J. Biol. Chem. **78:** 83 (June) 1928.

3. Sherman, H. C., and Axtmayer, J. H.: A Quantitative Study of the Problem of the Multiple Nature of Vitamin B, J. Biol. Chem. **75:** 207 (Oct.) 1927. Chick, Harriette; and Roscoe, Margaret H.: On the Composite Nature of the Water-Soluble B Vitamin, Biochem. J. **21:** 698, 1927. Hunt, C. H., and Krauss, W. E.: The Relative Antineuritic and Antipellagric Potency of Cow's Milk, J. Biol. Chem. **79:** 733 (Oct.) 1928.

4. Morse, F. W.: The Jodine Content of Cape Cod Cranberries, J. Biol. Chem. **79:** 409 (Oct.) 1928.

In view of the prevailing uncertainties, it is fortunate that extensive studies have been undertaken to ascertain something of the action of iodides administered over long periods. Hanzlik and his co-workers [5] have made observations on rats under conditions that tend to give indication of deleterious effects as they are shown in changes in weight and growth of the body. After all, these constitute good objective evidence as they reflect the sum of effects on functions of the body to an extent that it would be impracticable to secure clinically from man. To an otherwise adequate ration, sodium iodide was added in amounts that corresponded to 3.3 mg. daily per kilogram throughout the major part of the life of the rats. This dosage of iodide would correspond to about 0.23 Gm. (3½ grains) daily for an adult of 70 Kg. and might represent the daily amount used during a course of medication with iodide for the prevention of simple goiter, and that used in the treatment for toxic goiter and for chronic inflammations such as bronchitis, asthma and arthritis, but would be several times greater than the daily dose of iodide used in the form of iodized table salt. The outcome was compared to the effects of absence of such "medication" as well as those produced by equivalent concentrations of other familiar salts.

The continued administration of iodide in small daily doses in food over long periods (covering from about one seventh to seven twelfths of the span of life) caused moderate though variable increases in weight and growth of the body in the majority of animals on a complete dietary. The same tendency was indicated in rats on a deficiency diet. In contrast to the results obtained with iodide were those with sulphocyanate, bromide, arsenic, thallium and manganese, as controls, under the same conditions; these salts reduced body weight and growth, and arsenic and thallium caused fatalities. The results obtained with the iodide corroborate and correlate with interesting and important results obtained with small doses of iodide reported in the literature of veterinary medicine.

There is no reason to believe from these experiments that the prolonged use of iodide in small doses under ordinary conditions is detrimental. On the contrary, the results along various lines indicate that it is beneficial. Hanzlik warns, however, that this would not apply to the continued use of iodide in specific conditions of the thyroid, or to large doses of the drug. An explanation has been sought in the reported depressant effects of small doses of iodide on the metabolism of man,[6] thereby possibly producing an effect of conservation of energy and opportunity for greater gains on the same food intake. The less favorable effect of sulphocyanate, a salt chemically and pharmacologically close to iodide, is of interest in view of its current therapeutic employment in the management of arterial hypertension.

5. Hanzlik, P. J.; Talbot, E. P., and Gibson, E. E.: Continued Administration of Iodide and Other Salts, Arch. Int. Med. **42**: 579 (Oct.) 1928.
6. Loewy, A., and Zondek, H.: Deutsche med. Wchnschr. **47**: 349 (March 31) 1921. Neisser: Berl. klin. Wchnschr. **57**: 461, 1920.

THE ATTEMPT TO PERPETUATE THE SHEPPARD-TOWNER ACT

A bill authorizing the appropriation of one million dollars annually for a child welfare extension service in the children's bureau in the Department of Labor,[1] introduced by Representative Newton of Minnesota last May, is now pending in Congress, before the Committee on Interstate and Foreign Commerce of the House of Representatives. The extensive publicity and propaganda in favor of this legislation during recent months justify the belief that an effort will be made to procure its enactment during the approaching short session of Congress. If the bill is not passed, work under the Sheppard-Towner Act must stop on June 30, 1929, when the act expires by limitation. The pending bill aims to perpetuate the principles of the Sheppard-Towner Act, but on an even broader basis.

The differences between the Sheppard-Towner Act and the legislation now proposed indicate the extraordinary acquisitiveness of the pending legislation. The Sheppard-Towner Act is self-limited; the pending bill seeks to establish a permanent policy. The Sheppard-Towner Act recognizes the right of every state to control health activities within its own borders; the pending bill would actually authorize the children's bureau to carry on its activities independent of state agencies. The Sheppard-Towner Act defines the method for the distribution among the states of money appropriated under its authority; the pending bill leaves to the children's bureau the determination of the amount of federal money that will be spent in any state and the amount that the bureau will demand as the price of the state's participation in the work. The Sheppard-Towner Act requires that every project, before being adopted, be approved by a board consisting of the Surgeon General of the Public Health Service, the chief of the children's bureau and the commissioner of education; the pending bill substitutes for this a board devoid of authority and with advisory functions only, with which the chief of the children's bureau may or may not consult, as she sees fit, and whose advice she may reject or accept at her pleasure. The chief of the children's bureau is to be the chairman of the board and to appoint five of its nine members, while the commissioner of education, the Surgeon General of the Public Health Service and the director of extension work of the Department of Agriculture make up a minority of three.

The Sheppard-Towner Act and the pending bill have, however, some points in common. Neither of them lays down any line of demarcation between the welfare and hygiene of mothers and children and the welfare and hygiene of the rest of the people, so as to limit operations under the act to a clearly defined field. Neither the Sheppard-Towner Act nor the pending bill contains anything to show why money appropriated

1. H. R. 14070

for health activities should not be spent under the direction of the United States Public Health Service, which was organized for such work, instead of under a bureau that must duplicate a considerable part of the medical corps already organized and functioning in the Public Health Service if it is to work effectively.

The Board of Trustees of the American Medical Association has considered the pending bill and has voted to voice the opposition of the American Medical Association to it. Letters of protest against its enactment should be sent to senators and representatives in Washington. They should refer to H. R. 14070, A Bill to Provide a Child Welfare Extension Service, and for other purposes.

THE PUBLISHER'S RESPONSIBILITY

In the intensive and persistent fight that THE JOURNAL has carried on for nearly a quarter of a century against medical frauds, there has been stressed, time and again, the anachronism of punishing the medical faker while allowing to go unscathed the newspaper or magazine publisher that made it possible for the faker to function. It has been shown repeatedly that in many instances the publishers make more money out of a swindle than do the exploiters of the swindle. Many years ago, before advertising was carried on to the extent that it is today, one of the most widely known makers of "patent medicines" said to his fellow members of the nostrum organization: "The twenty thousand newspapers of the United States make more money from advertising the proprietary medicines than do the proprietors of the medicines themselves." The postal authorities, in issuing fraud orders against medical frauds, have reported that in some instances the amount spent by quacks in advertising is considerably in excess of one-half their gross receipts.

These facts make clear the necessity of bringing home to the careless or crooked publisher the responsibility that he assumes in accepting advertisements for fraudulent schemes. Some months ago the Federal Trade Commission called a trade practice conference for the publishers of periodicals to consider ways and means of eliminating, as far as possible, fraudulent advertisements from newspapers and magazines. The commission, because of its investigations of frauds in various fields, realizes the anomaly of the situation as it is at present. The conference was held in New York City on October 9 last. Representatives of six thousand publishers were present. As a result of the conference, a resolution was adopted, to the effect that the National Better Business Bureau be made the machinery through which the publishing industry would police the periodical field. This agreement, reached by the periodical publishers, has just been accepted by the commission as an expression of the trade.

Readers of THE JOURNAL are fairly familiar with the work of the National Better Business Bureau and its affiliated local Better Business Bureaus. These organizations are probably the most potent influence extant for the elimination of fraud in advertising. In the medical field, the national and many of the local better business bureaus have long been in close cooperation with the Bureau of Investigation of the American Medical Association, and every better business bureau in the country receives, each week, advance pages from THE JOURNAL containing matter dealing with quackery as it affects the public.

The resolution adopted by the periodical industry also proposed that the National Better Business Bureau, operating in behalf of the advertising industry, report to the Federal Trade Commission any violations of the Trade Practice Conference rule.

While there are in the publishing field many magazines and newspapers that not only rigidly exclude fraudulent advertising but also reject a great deal of advertising that, while not fraudulent, is open to criticism, there are other publishers whose only yardstick for the acceptance of advertising seems to be whether or not the advertisement will debar the publication from the United States mails. The conference just held and the results of that conference will, it is to be hoped, bring the latter group to a realization of their responsibilities.

Current Comment

RECENT VIEWS ON MEDICAL EDUCATION

The Commission on Medical Education, composed of distinguished educators in many fields and of many leading medical men, has recently made available its third report.[1] The report is devoted primarily to considerations of all the aspects of modern medical education. The commission feels that the trend of medical education has been to prolong greatly the period of preparation for the study of medicine, and that time can probably be saved by the reorganization and shortening of existing courses, by the reduction of time devoted to vacations and by more differentiation among students. Broader latitude is urged for requirements for entrance to medical schools; indeed, it is stated definitely that the specific medical school requirements should be confined to the fundamentals of biology, physics and chemistry. The specific suggestion is made that the various organizations interested in medical education permit certain colleges interested in premedical education to experiment with it without penalty to their students, in the hope of contributing to greater flexibility and variety in this phase of medical study. So far as teaching the basic medical sciences may be concerned, the most common criticisms have to do with the overcrowding of the curriculum, too much detail, too much emphasis on laboratory manipulation and technic, and a failure to correlate properly the work of various departments with clinical practice. These defects are to be corrected by emphasizing man as a

1. Third Report of Commission on Medical Education, October, 1928, 215 Whitney Avenue, New Haven, Conn.

living whole rather than as a group of separate organs and systems. More time must be provided for reading and thinking. Correlation of the fundamental sciences with clinical medicine may be brought about through effort by teachers of both divisions. In the teaching of clinical medicine, more emphasis is needed on preventive medicine. The unit of medical practice must be the patient, not the disease. The committee felt that state medical boards and other agencies concerned with licensure could help materially to correct present defects in medical training if they would confine their functions to the approval of medical schools and the general features of medical training and internship, and leave the details of the curriculum and clinical training to the medical school authorities. The chief general considerations in medical education seem to be the necessity for more electives in the curriculum, special emphasis on the technic of using current and reference literature, and the choice of actual clinicians for clinical teaching. It is urged that teachers of clinical medicine should not be subject to any restrictions and regulations beyond those imposed on teachers in academic work so far as their university relationships are concerned. These are merely the high points of the report of the commission. It has given careful consideration to the problems in its field. Representing as it does a group of leaders who are intimately concerned in their daily work with medical practice, medical organization and medical teaching, the report merits the respect and study of every one interested in medical education.

EXONERATED RODENTS

The micro-organism *Leptospira icterohaemorrhagiae*, responsible for the epidemic malady commonly described as infectious jaundice, or Weil's disease, has been found to be harbored by rats the world over. This rodent is the presumable source of infection, perhaps through the intermediation of an insect vector. In Japan it is said that nearly 50 per cent of wild rats are infested and the disease is quite prevalent, particularly from September to November. The United States is not immune. Infested rats have been reported in large numbers from such diverse localities as New York, Albany, Nashville and Baltimore. Unexpectedly enough, epidemics of infectious jaundice are not believed to have occurred in the Philippine Islands, despite the widespread prevalence of this disease in Japan and Formosa and the extensive shipping communications that exist between these countries and the Philippines. An explanation appears to have been secured by McKinley[1] of the Bureau of Science in Manila. A systematic examination of the wild rats caught in the vicinity of this capital to which most of the foreign shipping comes has disclosed a paucity of *Leptospira icterohemorrhagiae* in the wild rats of the Philippines in harmony with the clinical records regarding infectious jaundice. McKinley estimates that probably not more than 1 per cent of the Philippine rats are infested with this parasite and perhaps this figure is high. He adds that certainly infectious jaundice is not a clinical problem in the Philippine Islands and in view of his study there appears to be an adequate explanation for this. Such experiences, furthermore, afford increasing justification for repeated careful check-ups on the infestation of the rodent population of all countries with respect to a number of microbic dangers, not to mention the even more desirable initiation of effective rodent extermination so far as this is reasonably feasible.

1. McKinley, E. B.: Leptospire Icterohaemorrhagiae in Wild Rats of the Philippine Islands, Proc. Soc. Exper. Biol. & Med. **26**: 26 (Oct.) 1928.

Association News

ABSTRACT OF MINUTES OF MEETING OF BOARD OF TRUSTEES, HELD IN CHICAGO, NOV. 16, 1928

A meeting of the Board of Trustees was held in Chicago, Friday, Nov. 16, 1928.

GIFT TO SCIENTIFIC RESEARCH

The Board expressed its appreciation to Dr. Cornelius Van Zwalenburg of Riverside, Calif., for his gift of $500 to the Committee on Scientific Research, to be used in promoting research on the hydraulic factors in certain abdominal diseases.

COMMITTEE TO COOPERATE WITH THE BUREAU OF INTERNAL REVENUE IN THE ESTABLISHMENT OF DEPRECIATION RATES

A committee consisting of Drs. Cary, Sleyster and Brown was appointed to cooperate with the Bureau of Internal Revenue in establishing depreciation rates, in order that the preparation and audit of federal income tax returns may be simplified and expedited.

REPRESENTATIVE ON ADVISORY COMMITTEE OF THE NATIONAL ASSOCIATION OF PENAL INFORMATION, INC.

Dr. Wendell C. Phillips of New York was appointed to represent the Association on the Advisory Committee of the National Association of Penal Information, Inc., which has under way a comprehensive study of the health and hospital problems in the prisons of the country.

COMMITTEE TO COOPERATE WITH FOOD AND DRUG ADMINISTRATION

A request from the Food and Drug Administration for the appointment of a committee to cooperate with the administration relative to the manufacture of pharmaceuticals, especially those put up in ampules, was referred by the Board to the Council on Pharmacy and Chemistry, with the request that that council name a committee.

NEWTON SHEPPARD-TOWNER BILL

The Board expressed the opinion that the Newton bill, of the same general nature as the Sheppard-Towner act, is unwise and that it should be opposed by the medical profession.

CHAIRMAN OF LOCAL COMMITTEE OF ARRANGEMENTS

The appointment of Dr. E. A. Sommer of Portland, Ore., to act as chairman of the Local Committee of Arrangements for the 1929 session of the American Medical Association, to be held in Portland, was approved.

COMMITTEE TO COOPERATE WITH THE JOINT COMMITTEE ON HEALTH PROBLEMS IN EDUCATION

The following committee was appointed to represent the American Medical Association on the Joint Committee on Health Problems in Education:

Dr. Edward Jackson, Denver; Dr. R. G. Leland, Chicago, one year.
Dr. R. W. Corwin, Pueblo; Dr. Isaac Abt, Chicago, two years.
Dr. John M. Dodson, Chicago; Dr. A. J. Chesley, St. Paul. three years.

COOPERATION WITH U. S. VETERANS' BUREAU

A committee composed of Dr. Walsh, as chairman of the Committee on Comity; Dr. Woodward, director of the Bureau of Legal Medicine and Legislation; Dr. Richardson, member of the Board of Trustees, and the General Manager was

appointed to confer with Dr. Edgar O. Crossman, medical director of the U. S. Veterans' Bureau, concerning relations of that bureau and the medical profession.

COMMITTEE ON VISUAL AND MOVING PICTURE EDUCATION

Dr. Irving S. Cutter, dean of Northwestern University Medical School, was appointed a member, and chairman, of the Committee on Visual and Moving Picture Education, in place of Dr. George Whipple, whose duties at the University of Rochester prevent his acceptance of appointment on this committee.

Reports of the General Manager and other officers were received and other routine business transacted.

MEDICAL BROADCAST FOR THE WEEK

The American Medical Association Morning Health Talks and Evening Health Hints from Hygeia

The American Medical Association broadcasts daily at 10 o'clock in the morning, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week of December 3 to 8 will be as follows:

December 3. "Do the Infectious Diseases Eliminate the Unfit?" and "Lively Limericks for Little Listeners," by Dr. R. G. Leland.
December 4. "The Heart and the Blood Vessels," by Dr. Morris Fishbein.
December 5. "The Quack versus the Pure Food Law," by Dr. Arthur J. Cramp.
December 6. "Colleges Approved for Premedical Education," by Dr. N. P. Colwell.
December 7. "Outdoor Americans," by Dr. R. G. Leland.
December 8. "Vaccination Legislation," by Mr. J. W. Holloway.

Evening Health Hints from Hygeia at 8 o'Clock, Central Standard Time

December 3. How Does Your Town Rate on These Questions?
December 4. Prescribing by Mail.
December 5. Nine Little School Boys.
December 6. "White" versus Whole-Wheat Bread.
December 7. Danger of Electrical Shock in the Home.
December 8. Play or Plow?

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Licenses Revoked.—At the October meeting of the state board of medical examiners, the licenses of the following doctors of medicine were revoked by the board: James G. Ham, San Bernardino, habitual intemperance; Jackson L. Martin, Fresno, illegal operation; Hugh T. Williams, Los Angeles, narcotic addiction, and Clayton Wheeler, Los Angeles, who has appealed his case.

Personal.—Norman R. Blatherwick, who for the past eight years has been biochemist and director of chemical research at the Potter Metabolic Clinic, Santa Barbara Cottage Hospital, California, has resigned to become director of the Biochemical Laboratory of the Metropolitan Life Insurance Company, New York.——Dr. Paul E. Bowers has been appointed professor of abnormal psychology and legal medicine at Loyola University Law School, Los Angeles.——Dr. Cecil M. Burchfiel, San Jose, has been appointed health officer of Santa Clara County to succeed the late Dr. William Simpson.

Tercentenary of Malpighi's Birth.—The three hundredth anniversary of the birth of Marcello Malpighi was celebrated, November 14, by the University of California, Santa Clara University and Stanford University at a dinner at the Hotel Fairmont, San Francisco, to which members of the California Medical Association were invited. Prof. Carlo Formichi spoke on "The Italy of Malpighi's Day"; Brother Leo of St. Mary's College, Oakland, "Malpighi's Influence on Present Day Thought"; Dr. Arthur W. Meyer, "Malpighi as a Biologist," and Chauncey D. Leake, Ph.D., "Malpighi as a Botanist and a Pathologist."

Dental Treatment for Pribilof Islanders.—The offer of providing dental treatment for the white and native population of the Pribilof Islands has been accepted by the dean of the University of California Dental College. The Pribilof Islands are seven steamer days north of Seattle in summer and are icebound in winter. The inhabitants are engaged chiefly in hunting seals. The Indians have not received dental treatment in any form since 1926. Plans are being made to send to the islands H. C. Meade, D.D.S., a 1928 graduate. Only about twenty white people winter in the islands, the remainder of the inhabitants being Indians. They live comfortably in winter. Their quarters are well built, food is ample, radio reception is excellent and motion picture entertainments are given once a week.

Radio Medical Program.—The University of California Medical School, San Francisco, is broadcasting medical talks over Station KFRC, Monday afternoons, at 4:15, in cooperation with the San Francisco County Medical Society. The programs are being arranged by Dr. Harold M. F. Behneman, who will answer questions on general medicine following the talk. No correspondence will be undertaken in connection with the program; letters will not be answered. Diagnosis of individual cases will not be attempted nor will the treatment of disease be discussed except when necessary. The talk the week of November 12 was by Dr. Edwin L. Bruck on "Influenza and Pneumonia." The speakers and topics for coming programs are to be announced a few days previous to the day of presentation.

Epidemic of Influenza.—*Public Health Reports*, November 16, notes that an epidemic of influenza appeared in the San Francisco Bay region in October. The California State Department of Health in its October 28 bulletin considered the disease to be present in mild form. Later reports in the press indicate that nearly 4,000 people contracted influenza and that fifty-five deaths occurred in the San Francisco area during October and early November. Los Angeles was reported to have on November 26 about 1,400 cases, 400 of which were reported in one day. The disease is characterized in the latter source of information as comparatively severe, but the outbreak was expected to be checked within a few days. The public health service, November 16, said there did not appear to be an unusual prevalence of influenza elsewhere except some increase in the number of cases in South Carolina and Georgia.

Society News.—The Los Angeles County Medical Association met jointly with the Pacific Physiotherapy Association at Pasadena, November 19, to take part in a physical therapy roundtable presided over by Dr. Tilman Howard Plank, San Francisco.——Dr. Hans Lisser, San Francisco, addressed the Contra Costa County Medical Society, October 13, at Richmond on "Goiter Survey of the High Schools of Contra Costa County."——The Fresno County Medical Society was addressed, recently, by Dr. Eugene S. Kilgore, San Francisco, on "Diagnosis of Common Heart Disease."——Dr. Lewis Gunther, San Francisco, addressed the San Joaquin County Medical Society, October 4, on "The Radicular Syndrome in Hypertrophic Osteoarthritis of the Spine."——The Santa Cruz County Medical Society was addressed, recently, by Dr. Thomas Henshaw Kelly, San Francisco, on "The Conduct of Labor."——The dean of the University of California Medical School has named an advisory committee of twelve graduates of the institution, widely representing the state, as a means of obtaining advice on some of the problems of medical education and of keeping in touch with the practice of physicians.

CONNECTICUT

Society News.—The first issue of the *Yale Journal of Biology and Medicine* appeared in November. It will be published bimonthly by Yale students, supplemented by a faculty advisory board.——Dr. F. d'Herelle, who was recently appointed professor of bacteriology at Yale University School of Medicine, lectured at the Mayo Foundation, Rochester, Minn., November 15, on "Bacteriophagy."

Midwives Quit Practice.—The following midwives have informed the Connecticut State Department of Health that they have given up the practice of midwifery: Rosie Alterisi, New Haven; Anne Poskiewich, Union City; Cacilie Richter, Port Chester, N. Y.; Karoline Dziedzic, New Britain; Mrs. Amelia P. Rudolph, New Britain; Mrs. Sarah Wheale, Bridgeport; Mrs. Franceska May, Bloomfield, and Mary Borkoska, New London.

Another Family of Physicians.—Dr. Roger M. Griswold, Kensington, writes that his great grandfather, George Griswold, was the first physician in Manchester, Conn., and a charter member of the Connecticut Medical Society. His father, Rufus

W. Griswold, was twice president of the Hartford County Medical Society, and his uncle, Dr. C. E. Hammond, president of the Middlesex County Medical Society. These men practiced medicine for forty-eight and forty years, respectively. Dr. Hammond's son, George, a graduate in medicine, died while an intern in Bellevue Hospital. Dr. Roger Griswold was one of three sons, all physicians, and his own son is Dr. Matthew H. Griswold. Dr. Roger Griswold has been in practice fifty-three years.

GEORGIA

Deaths Without Medical Attendance.—According to the state board of health, 3,215 persons died in Georgia in 1927 without medical attention. The board looks on this situation as distressing, since no doubt many of these lives could have been saved or prolonged. The causes for this state of affairs are lack of a sufficient number of physicians in the rural districts, ignorance, and depressed economic conditions in the rural sections.

Society News.—Dr. James A. Redfearn, Albany, councilor for the Second District Medical Society, addressed the Terrell County Medical Society, Dawson, recently on diabetes.——The Ninth District Medical Society met at Gainesville in September and was addressed, among others, by Dr. Clarence L. Ayers, Toccoa, on educational value of the medical society, and Dr. Charles E. Waits, Atlanta, on "Surgical Treatment of Hyperthyroidism." The ladies' auxiliary met also. The next meeting of this society will be at Gainesville in March, 1929. ——The Fulton County Medical Society, Atlanta, was addressed, November 1, by Dr. Weldon E. Person on "Chronic Empyema."

ILLINOIS

Personal.—Dr. John K. Shumate has been appointed superintendent of the Livingston County Tuberculosis Sanatorium, Pontiac.——Dr. Royal L. Eddington, Lacon, was elected coroner of Marshall County, November 6.——Dr. Jay C. Simmons, Canton, for several years deputy coroner of Fulton County, has resigned.——Dr. Herman T. Bechtold, O'Fallon, was guest of honor at a dinner, November 11, in celebration of his seventy-fifth birthday.——Dr. Jesse W. Carr has been appointed health officer of the village of La Grange.

Chicago

Society News.—The Chicago Orthopedic Club and the Chicago Medical Society will hold a joint meeting, December 19; Dr. Russell A. Hibbs, New York, will read a paper on "Relation of Developmental Abnormalities at the Lumbosacral Juncture to Low Back Pain and Disability."

Outbreak of Smallpox.—In the five days ending November 25, the outbreak of smallpox in the Auburn Park district amounted to twenty-three cases, all of which have been isolated and are said to be mild. The health commissioner considers that there is no danger of an epidemic, as the exposed persons have been vaccinated. The outbreak is due in part, it is reported, to an error in diagnosis, health department officials having considered one of the first cases to be chickenpox. Nearly 1,000 pupils in a school were exposed.

Joint Meeting and Smoker.—Prof. Arthur H. Compton, Ph.D., University of Chicago, will address a joint meeting of the Chicago Medical Society and the Radiological Society of North America at the Drake Hotel, Wednesday evening, December 5, on "Some Physical Effects of the X-Ray," and Prof. William T. Bovie, Ph.D., Northwestern University, on "The Stuff We Are Made Of," illustrated with lantern slides. The annual smoker will follow the addresses. The meeting has been arranged under the auspices of the Chicago Roentgen Society. A cordial invitation is given to all members of the Chicago Medical Society.

Members Suspended.—At the November 13 meeting of the council of the Chicago Medical Society, the council voted to suspend from membership for six months Dr. Athanase Marantis who, according to the bulletin of the society, was charged with unethical advertising. Dr. Marantis sent out a book entitled "Our Greatest Enemy," with a slip stating "If you think this book is worth reading, please insert a quarter in the coin mailing card and forward it to the author. It will help others to get the same book." Dr. Thomas G. Wallin, whose case was referred back to the ethical relations committee at the October meeting, was suspended for one year.

Another "Health Institute."—The Bulletin of the Chicago Medical Society calls attention to a letter which is being sent to some of its members by the Good Health Institute, 601 Nixon Building, 105 West Monroe Street, which is attempting to establish a "periodic health examination service" consisting of an annual physical examination and urinalyses. The institute's letter states that it appoints local physicians to make physical examinations and asks whether the addressee cares to act as a medical director in his locality, at $4 for each examination, "which takes less time than those made for life insurance companies." The letter goes on to say that the physicians advise persons examined as to conditions disclosed by their examinations and give advice as to diet and exercise, but no medical treatment, and that representatives of the institute will soon be calling on the better class of residents. The Chicago Medical Society does not look with favor on this proposition.

LOUISIANA

Personal.—Dr. Henry Daspit has been appointed dean of the Graduate School of Medicine of Tulane University of Louisiana, New Orleans, succeeding Dr. Edmund D. Martin. Dr. Daspit is an alumnus of Tulane. The graduate school of medicine was organized in 1888 under the name of the New Orleans Polyclinic and was absorbed by the university in 1906, becoming the Graduate School of Medicine of Tulane University of Louisiana in 1915. It was reorganized in 1925.

Health at New Orleans.—Telegraphic reports to the U. S. Department of Commerce from sixty-eight cities with a total population of about 31 million, for the week ending November 17, indicate that the highest mortality rate (20.6) was for New Orleans, and that the mortality rate for the group of cities as a whole was 12.5. The mortality rate for New Orleans for the corresponding week last year was 15.6, and for the group of cities, 12.3. The annual rate for sixty-eight cities, for the forty-six weeks of this year, was 12.8, as against a rate of 12.2 for the corresponding weeks last year.

MARYLAND

Personal.—About 200 Baltimorians attended a testimonial dinner, November 20, at the University Club in honor of Dr. William H. Welch, director emeritus, Johns Hopkins University School of Hygiene and Public Health.

New Laboratory Building.—Johns Hopkins University School of Medicine is planning a new five story laboratory building which will be joined with the old physiologic chemistry building by a corridor. The $350,000 structure will house the departments of physiology, pharmacy and physiologic chemistry. Dr. E. Kennerly Marshall will have charge of the first two floors, and Dr. John J. Abel, the third; the upper two floors will be occupied by the department of physiologic chemistry.

Lady Osler's Will.—Lady Osler, who died in England, August 31, left the library at Johns Hopkins University, Baltimore, known as the Tudor and Stuart Club, $8,700, the Gross Library at the Philadelphia College of Physicians, $2,850, and Jefferson Medical College, Philadelphia, $24,250, to establish a lectureship in surgery in memory of her first husband, Dr. Samuel W. Gross. Lady Osler, widow of the late Sir William Osler, was the great granddaughter of Paul Revere of Revolutionary times; her maiden name was Grace Revere. She married Dr. Osler in Philadelphia in 1892, three years after the death of her first husband. Dr. Gross donated his library to the Philadelphia Academy of Surgery, which transferred it to the Philadelphia College of Physicians, where it remains.

NEBRASKA

Society News.—The Ninth Councilor District Medical Society, Kearney, was addressed, October 9, by Dr. Ralph E. Sawyer, Doniphan, on "Overuse of Insulin"; Dr. James M. Patton, Omaha, "Management of Acute Inflammation of the Eye"; Dr. Clyde A. Roeder, Omaha, "Goiter," and Dr. Orville D. Johnson, Kearney, on "Intussusception."——The third Councilor District Medical Society held its semiannual meeting at Falls City, November 22; the speakers were Drs. John C. Thompson, Lincoln, on "Myocarditis"; Roy W. Fouts, Omaha, "X-Ray Diagnosis of the Gastro-Intestinal Tract"; Byron B. Davis, Omaha, "The Gallbladder"; Karl S. J. Hohlen, Lincoln, "Operative and Nonoperative Brain Conditions," and John Jay Keegan, Omaha, "The Purpose and Policy of the University Hospital." Dr. Davis gave "An African Travelogue" with lantern slides.——The Omaha-Douglas County Medical Society was addressed, November 27, by Dr. Edward W. Rowe, Lincoln, on "Cholecystography," and Dr. Arbor D. Munger, Lincoln, on "Tuberculosis of the Kidney."——Dr. Francis J. Bean has been appointed superintendent of the University of Nebraska Hospital, Omaha.

NEW JERSEY

"Radium Paint" Kills Its Inventor.—Sabin A. von Sochocky, inventor of a "radium paint" used to illuminate watch dials, died, November 12, at his home in Orange of aplastic anemia, a victim of his invention. He had been ill from the effects of radium paint for more than a year. A colleague died of the same disease three years ago. Von Sochocky was an Austrian by birth, 46 years of age, who came to this country in 1906. He was consultant to the United States Radium Corporation, which was sued by several employees for injuries resulting from working with radium paint. According to the New York *Times*, these suits were settled with the awarding of $10,000, a life pension of $600 a year, and medical attendance for each of the plaintiffs. Some of these cases were fatal (THE JOURNAL, Sept. 26, 1925, p. 961; Dec. 5, 1925, p. 1769; Dec. 18, 1926, p. 2078).

NEW YORK

Personal.—Dr. Orra A. Phelps has been appointed full-time rural school medical inspector for a district in the western part of Montgomery County. Dr. Phelps is a recent graduate of Johns Hopkins University School of Medicine, Baltimore.

Society News.—The New York State Congress of Parents and Teachers at its thirty-second annual meeting in Niagara Falls in October adopted a resolution urging that increased efforts be made to advise children concerning the prevalence of "social diseases" and to lay the ground work for their prevention.——The Medical Society of the County of Albany held its November 20 meeting at St. Peter's Hospital, Albany; among others, Dr. Arthur J. Bedell demonstrated photography of the fundus in nephritis, and Dr. James N. Van Der Veer discussed "Nephrolithiasis," illustrated with lantern slides.——The Medical Society of the County of Nassau was addressed, November 27, at the Rockville Country Club by Dr. Arthur C. Martin, Rockville Center. The society announces the opening of executive offices at 457 Franklin Avenue, Mineola, to which members and friends are invited. The society will give a dinner at the Garden City Hotel, December 29.

New York City

Personal.—Dr. David Sashin, who was awarded the annual orthopedic scholarship recently by the Hospital for Joint Diseases, is in Europe, studying at orthopedic clinics and will later attend the orthopedic congress at Liverpool.——Dr. Biagio Bartoli writes that, beginning with his grandfather, there have been four physicians in the family.

School Health Day.—Nearly 1,000,000 children were given physical examinations, November 1, in the elementary schools on the annual school health day. Recitations were suspended. Many parents came to the schools while their children were being examined by health department physicians and nurses, assisted by the teaching staff. The school authorities will notify parents of the defects found. Children with physical defects will be followed up to note whether correction has been made.

Society News.—At the meeting of Hospital Center number 6, November 23, at the Army Building, 39 Whitehall Street, Major Milton I. Strahl (Res.) read a paper on "Management and Function of a Hospital Center in War Time."——Drs. Isaac Dudley Jackson, San Antonio, Texas, addressed the Medical Association of the Greater City of New York, November 19, on "Speculations on Carbohydrate Metabolism in Cancer"; E. Ellice McDonald, Philadelphia, on "Cell Division in Its Relation to Cancer," illustrated by motion pictures, and Francis Carter Wood, on "Palliative Treatment of Cancer of the Breast."——The Yorkville Medical Society was addressed, November 19, by Drs. J. Arnold Bargen, Rochester, Minn., on "Etiology, Symptomatology and Medical Treatment of Chronic Ulcerative Colitis," and Burrill B. Crohn on "Complications, Treatment and End-Results of Chronic Ulcerative Colitis."——Dr. Giuseppe Franchini, Bologna, addressed the Association of Italian Physicians in America at the New York Academy of Medicine, November 19.

Plain Talk to Builders of Skyscrapers.—In an address before the Building Managers and Owners Association, November 20, Dr. Shirley W. Wynne, the recently appointed health commissioner, discussed "Relation of Health to Building." He reviewed the development of the tenement house in New York since 1838, when the first one was erected on Cherry Hill, once an exclusive residental center and the site of one of George Washington's homes. The majority of New York people live in tenements today. Dr. Wynne believes that the improved housing conditions have had an important bearing on the reduction of sickness and mortality. He said that the increased congestion of streets and the inability to provide sufficient transportation to the business centers each day create a problem of the utmost importance. Today in the central portions of New York, the automobile is far less efficient for transportation than a horsedrawn vehicle. One can walk down Fifth Avenue in less than half the time it takes to travel by automobile. If the erection of skyscrapers is continued and no effort is made to limit their height or to zone the city, the very purpose of these great buildings will eventually be defeated. Is it sensible, is it business-like, Dr. Wynne asked, to want to move 100,000 people each day to a block in the center of the city to do work which could be done as efficiently in the boroughs where employees could have their homes and be within walking distance of their work? The whole idea is so unsound he said, that it is time to pause and to think.

Report of Committee on Public Health Relations.—The New York Academy of Medicine has published the report of its committee on public health relations for 1927 in pamphlet form. It is a splendid example of the value to the community of cooperation between its physicians and the local health department. The committee considered the plan of former Health Commissioner Harris for reorganization of the health department, the principle of which the committee endorsed. A plan for the consolidation of the municipal hospitals was worked out in conjunction with a committee appointed by the mayor. The committee considered the control of commercial laboratories and milk control. Certain definite aspects of the work of the department of health were commended. The committee conferred with physicists and chemists who specialize in heliotherapy and phototherapy and advised against experimentation in the schools with some of the commercially available substitutes for ordinary window glass, unless the experiments could be so controlled as to be of scientific value. The committee undertook the editing of a book which would point out to the general practitioner the opportunities for preventive work in the several branches of medicine. The office of the chief medical examiner, Dr. Charles Norris, has fully justified the hopes of those who helped secure legislation to abolish the coroner system. This office, however, is in need of equipment and personnel, and especially needs an adequate chemical laboratory staff. This department, the committee believes, should be provided with automobiles because of the many calls for medical examiners and the long distance they must travel to outlying boroughs. The committee on public health relations of the academy comprises thirty-five members. Dr. Charles L. Dana is the chairman, and Dr. James A. Miller, the secretary.

PENNSYLVANIA

Personal.—Dr. Wilbur F. Cassell, Spring City, has been appointed an assistant physician at the Pennhurst State Hospital.——Dr. Nellie S. Cassell, a recent intern at the Harrisburg Hospital, has sailed for India as a medical missionary.

Society News.—Dr. Edward L. Bauer, Philadelphia, addressed the Northampton County Medical Society, November 16, at Bethlehem, on children's diseases; in the series of lectures given by the society, the final number was November 28, by Dr. Robert H. Halsey, New York, on rheumatic heart disease, fibrillation and digitalis.——The Allegheny County Medical Society, Pittsburgh, conducted a symposium on carcinoma, November 23, the speakers being Drs. Sidney A. Chalfant, Holland H. Donaldson, Bender Z. Cashman, Evan W. Meredith, John H. Alexander and E. McCague.——The November meeting of the Berks County Medical Society was addressed by Dr. Frederic H. Leavitt, Philadelphia, on "Tumors of the Brain in Children," and by Dr. Wayne W. Bissell, Reading, on "The Pathologist in Hospital and Community Medicine."——The Lancaster City and County Medical Society held a symposium on cancer, November 7. The speakers were Drs. Jefferson H. Clark, Jr., William E. Robertson and John O. Bower, all of Philadelphia.——Dr. Edward Francis, U. S. Public Health Service, has pointed out that the Pennsylvania law prohibits the sale of western wild rabbits until they have been in cold storage at least thirty days. The low temperature kills *Bacterium tularense*. The period of cold storage thus makes rabbits infected with tularemia safe to handle.——The Pittsburgh Academy of Medicine, Pittsburgh, was addressed, November 27, by Drs. Charles H. Marcy and Harry R. Decker on "Surgical Treatment of Tuberculosis," and by Dr. Thomas B. McCollough on "Bronchoscopic Treatment of Pulmonary Abscess." The R. W. Stewart surgical memorial lecture of the academy was delivered by Dr. Frank H. Lahey, Boston, November 30, on "Diseases of the Biliary System and Their Surgical Management."

Philadelphia

Society News.—The new library of the Philadelphia College of Pharmacy and Science, which was furnished through the generosity of Messrs. John B. Raser, William H. Raser and William Heyl Raser, was dedicated, November 26.——Dr. John A. McGlinn has been elected president of the Philadelphia County Medical Society for the ensuing year.

Personal.—Dr. William E. Ashton was presented with the Distinguished Service Cross, November 22, at a ceremony in the eighteenth field artillery armory for service with the three hundred and ninth field artillery near Marcq, France, Oct. 17, 1918, when he went through heavy artillery fire to the assistance of wounded men.——Dr. George E. de Schweinitz recently gave a dinner at his home on Walnut Street in honor of Prof. George Weill of the University of Strasbourg and his son, Robert, of the department of biology of Woods Hole.

Unscrupulous Dealers in Meat.—The state assembly passed a meat inspection law in 1907 providing for the licensing and regulating of slaughter houses, shops, wagons and places where meat and poultry, game, fish and shellfish are prepared or stored or exposed for sale as food. The law is administered by a section of the bureau of health. Not all meat sold in Philadelphia, however, bears the stamp of the U. S. Bureau of Animal Industry or the Pennsylvania Bureau of Animal Industry, or the city bureau of health. Considerable meat is brought from adjoining counties by farmers, who dress animals on their farms, where no inspector is present when the animals are slaughtered. Edward E. Behrens, a supervising inspector, says that unscrupulous dealers go through the county buying up questionable animals which they slaughter sometimes in secluded spots. Other dealers slaughter questionable animals and smuggle the meat into the city, where they endeavor to make a quick sale. The inspection service, which makes a great effort to prevent such meat reaching the market, last year condemned and took off the market more than 1,500,000 pounds of unwholesome meat, poultry and fish. Carcasses which, after inspection, are found unsuitable for food, are seized and cooked and made into fertilizer.

SOUTH CAROLINA

Society News.—Dr. George R. Wilkinson, Greenville, addressed the Fourth District Medical Society, Seneca, October 2, on "Consideration of 'Biliousness' with Regard to the Later Advances in the Function of the Liver"; Dr. Hugh P. Smith, Greenville, "Indiscreet Use of Iodine in the Presence of Goiter"; Dr. William A. Strickland, Westminster, "A General Practitioner Doing Part-Time Specialty in the 'Sticks'"; Dr. William B. Lyles, Spartanburg, on "Obscure Renal Hematuria," and Dr. Burr Ferguson, Birmingham, Ala., "Resistance—A Living Force."——At a meeting of the Seventh District Medical Society, Manning, recently, among others, Dr. William H. Carrigan, Summerton, spoke on "Raynaud's Disease"; Dr. Nathaniel Barnwell Heyward, Columbia, "Gallbladder Complications of Typhoid Fever"; Dr. Charles E. Dowman, Atlanta, Ga., "Treatment of Intractable Pain," and Dr. Edward T. Kelley, Kingstree, "Endometrial Transplant in Abdominal Wound Following Cesarean Operation."——Dr. Stewart R. Roberts, Atlanta, Ga., addressed the Third District Medical Society, Greenwood, in October on "Nonvalvular Diseases of Heart."

TEXAS

Personal.—Dr. Thomas P. Haslam has been appointed associate professor of pathology at Baylor University College of Medicine, Dallas, and medical director of the Baylor Hospital Clinic. Dr. Haslam formerly was pathologist and radiologist at the Davis Memorial Hospital, Elkins, W. Va.

Hospital News.—The U. S. Government has purchased a site for a marine hospital at Galveston, an appropriation of $740,000 having been available for the site and the construction.——It is reported that a hospital for children costing $500,000 will be under construction shortly at Dallas, on a site on Wellborn Street overlooking Riverchon Park, which was donated by a local citizen.——The Brady Sanitarium, Brady, is constructing an addition which will double its capacity.

Society News.—Dr. William M. Lively addressed the Dallas County Medical Society, recently, on treatment of pneumonia, and Dr. William H. Stokes on "Ophthalmic Studies of Vascular Lesions of the Retina."——The El Paso County Medical Society was addressed, October 1, by Dr. Francis C. Goodwin on "The Weak, Painful Foot."——Dr. Victor M. Longmire, Temple, addressed the Falls County Medical Society, Marlin, October 8, on "Transfusions by the Citrate Method."——Dr. John E. Johnson, Mineral Wells, read a paper before the Palo Pinto County Medical Society, October 8, at Gordon on "Early Diagnosis of Cancer of the Stomach."——The Tom Green County Medical Society was recently addressed by Dr. Edmund L. Mee at San Angelo on "Puncture of the Vas Deferens in the Treatment of Gonorrhea."——Major Raymond E. Scott, medical corps, U. S. Army, read a paper before the Williamson County Medical Society, October 10, at Georgetown on "The Story of Antivenin" illustrated with moving pictures.——About seventy-five physicians attended the meeting of the Panhandle District Medical Society, October 10-11, at Memphis, and were entertained by golf, a luncheon given by the Rotarians, a banquet at the Country Club and drives for the ladies during the scientific meetings. The society will meet next at Amarillo, April 9-10, 1929.

WASHINGTON

Society News.—Dr. Melvin S. Henderson, Rochester, Minn., who has been in charge of the orthopedic section of the Mayo Clinic for many years, will conduct clinics before and address the Seattle Orthopedic Society, December 14-15.——The King County Medical Society will be addressed, December 3, by Dr. Torleif Torland, Seattle, on "Iodized Oil Injection in Pelvic Diagnosis," and by Dr. Royal S. Loving, Fort Lawton, on "Spontaneous Pneumothorax."——Dr. Arthur H. Gray has been elected president of the Seattle Pediatric Society for the ensuing year.——Dr. James T. Rooks has been elected president of the Walla Walla Valley Medical Society for the ensuing year, and Dr. Carl J. Johannesson, secretary.——The U. S. Veterans' Bureau Hospital, Walla Walla, is about to construct a $250,000 infirmary, in addition to other improvements.

GENERAL

Directory of City Health Officers.—The names of all health officers in the United States for cities of 10,000 or more population, together with their official title and whether or not they are employed on a full-time basis, are published in the November 16 issue of the *Public Health Reports*. The U. S. Public Health Service has published a similar directory each year since 1916.

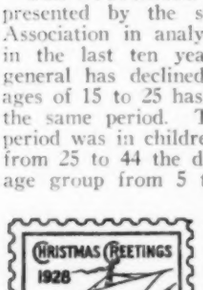
News of Epidemics.—An outbreak of smallpox was reported in the southern part of Portage County, Ohio, November 12.——The outbreak of diphtheria in Bergen County, N. J., amounted to seventy cases, November 11; the public school at Fairlawn had been closed and the state health department requested to assist in controlling the epidemic.——Forty prisoners in the Wayne County Jail, Detroit, were placed under quarantine, November 17, following the discovery of three cases of diphtheria among them.——The diphtheria outbreak in Indiana Harbor, Ind., was declining, November 16, when twenty-one cases were under quarantine.——A mother and her seven children near Elkhart, Ind., were reported suffering from scarlet fever, November 16. The father was the only member of the family who had escaped.——Fatalities from bubonic plague were reported, November 25, from the province of Tucuman, Argentina.

The Government Wants a Medical Adviser.—The U. S. Civil Service Commission announces that applications for medical adviser and assistant medical adviser will be received at its office in Washington until December 29 to fill vacancies in the food, drug and insecticide administration of the department of agriculture. The entrance salaries range from $3,800 to $4,400 a year for medical adviser, and from $2,600 to $3,100 a year for assistant medical adviser. The duties are to examine the character of foods, drugs and other commodities for the effect they have on the human body so as to determine the truth or falsity of claims made for them; to prepare reports for various government departments or offices; to take part in hearings or conferences; to testify in court and otherwise as the work may require, and to cooperate with inspectors, chemists, physicians, attorneys and others connected with the enforcement of laws dealing with adulterated and misbranded commodities and untruthful advertising. Competitors will not be required to report for examination, but will be rated on their education and experience.

Appalling Total of Automobile Deaths—Official Report.—In the registration area of continental United States in 1927, there were 21,160 accidental deaths charged to automobiles and motor vehicles, excluding motorcycles. The death rate from this cause was 19.5 per hundred thousand of population. These figures do not include deaths assigned to automobile accidents due to collisions with street cars and railroad trains, of which there were 476 and 1,676, respectively. If these were added to the 21,160, the total in the registration area would be 23,312 deaths in which automobile accidents were

involved and would raise the rate to 21.5 per hundred thousand of population. The registration area included only 91.3 per cent of the total population in the states in 1927. Assuming that the number of deaths from automobile accidents reported in the registration area comprises 91.3 per cent of the number of deaths in the entire United States, it is estimated by the U. S. Department of Commerce that the total number of deaths due to accidents with automobiles in 1927 was about 25,533. The department of commerce tabulates the accidents by states for several years and in sixty-eight cities in the United States with a population of more than 100,000. In crediting these deaths to cities, the department says that it should be remembered that sometimes the accidents occurred outside the city limits and the injured were hurried to hospitals in the city, thus increasing the city death rate.

The Prevention of Tuberculosis.—New facts have been presented by the statistician of the National Tuberculosis Association in analyzing tuberculosis deaths. It is said that in the last ten years, the death rate from tuberculosis in general has declined 36 per cent, but the death rate at the ages of 15 to 25 has declined only half that, or 18 per cent, in the same period. The greatest decline during this ten year period was in children under 5 years of age; in the age group from 25 to 44 the death rate declined 42 per cent, and in the age group from 5 to 14 the decline was 41 per cent. The little progress made in the age group from 15 to 24 has led to its being called "the neglected age." It includes the age period when many boys and girls are in high school where they are not supposed to suffer hardships. However, it is the adolescent period when important physiologic changes are taking place and these may tend to weaken their resistance to tuberculosis. Other factors entering into student life and industrial life which may help to keep the mortality high in this age period are late hours, fatigue, scanty clothing and extra strain and responsibility. The National Tuberculosis Association has been teaching the prevention of tuberculosis for twenty-five years. It endeavors to teach the public rules which, if followed, will tend still further to decrease the death rate from tuberculosis. This work is financed by the annual sale of Christmas seals, in December throughout the country. Last year, in Cook County (Chicago), Ill., alone, Christmas seals provided for 4,220 examinations at chest clinics; 10,543 examinations at infant welfare clinics; 63,819 home visits by nurses, and instruction by means of exhibits, booklets, radio and moving pictures.



Society News.—At the recent annual meeting of the American Public Health Association in Chicago, the association voted to request the cooperation of the state and local medical societies in the reporting of cases of tuberculosis, admitting that the success of reporting these cases depends on the support of the medical profession.——The international postgraduate medical courses are given in Berlin by members of the faculty of the university; part of the courses are permanent and part are given only in March or April. The courses are given in German, but many of the teachers are able to lecture in English, French and Spanish. The Kaiserin Friedrich-Haus maintains an information bureau which will assist in procuring lodgings and arrange for attendance at clinics on request. The address is Berlin, Germany, N W 6, Luisenplatz.——The National Society for the Prevention of Blindness held its annual conference, November 26-28, in New York in cooperation with the American Association of Industrial Physicians, the American Association of School Physicians, and the National Organization for Public Health Nursing; and sight-saving class supervisors and teachers.——Dr. Thomas W. Moore, Huntington, W. Va., was elected president of the Southern Medical Association at the recent annual meeting in Asheville, N. C.; Drs. Paul H. Ringer, Asheville, N. C., Edward C. Ellett, Memphis, Tenn., and Felix J. Underwood, Jackson, Miss., vice presidents, and Mr. C. P. Loranz, Birmingham, secretary. The next annual meeting will be in Miami, Fla.; it was voted to hold three day meetings hereafter. A committee was appointed to consider the purchase of property in Birmingham, Ala., for a permanent home of the association.

Meeting of Experts of League of Nations.—The experts of the health organization of the League of Nations, which met at Geneva, October 8-10, considered the following subjects: (1) prevention of syphilis; (2) variations in the prevalence of syphilis, including methods of determining the underlying causes; (3) methods of teaching medical students the treatment of syphilis; (4) standardization of drugs used in treatment of syphilis. Their views were summed up about as follows: In the fight against syphilis, the results obtained have not been such as the recognized progress in syphilitic therapy would give reason to expect. The explanation seems to be that new discoveries in the diagnosis and treatment of syphilis are not exploited in the right way or with the desirable promptness, and a uniform, generally recognized method of treatment does not exist. A statistical compilation of the various methods of treatment in clinics and dispensaries would give a better general idea of the efficacy of these methods. In making this compilation, the material from the clinics that participate should be sent to the health section of the League of Nations on cards relating to individual patients. The directors of clinics will be requested to work up cases for a given period of years, including all which have been under observation by them for more than six months, as well as the older cases in which adequate histories are available. The director of each clinic will be requested to prepare a general statement of the principles which he applies at various times. Apart from this retrospective work, it should be suggested to clinics which are prepared to place their material at the disposal of the League of Nations that they should start at a given date recording newly registered cases of syphilis on the lines of these cards, so that a few years hence they may have records for such statistical purposes. It is desirable that other agencies, such as insurance funds and private institutions, should join in this investigation.

The committee regrets that bismuth preparations which do not correspond to the manufacturer's indications should be placed on the market in various countries. It is suggested that the practice adopted in some countries of official chemical testing of bismuth preparations be made widely known. The committee believes that no national plan of prevention against syphilis is complete which does not provide for theoretical and practical training of medical students in syphilology, followed by an official examination. Continuation courses on this subject for general practitioners should also be provided. The committee adjourned the discussion on the variations in the prevalence of syphilis to a later date. The members present were Professor Jadassohn, director, University Skin Clinic, Breslau, chairman; Dr. T. Madsen, director, State Serum Institute, Copenhagen; Col. L. W. Harrison, British Ministry of Health, London; Dr. Louis Queyrat, president, Ligue nationale française contre le peril vénérien, Paris, and Dr. John H. Stokes, professor of dermatology and syphilology, University of Pennsylvania School of Medicine, Philadelphia.

CANADA

Council Rates Medical School in Class A.—Following an inspection of Queens University Faculty of Medicine, Kingston, by the secretary of the Council on Medical Education and Hospitals of the American Medical Association, the council announces that class A rating has been given to the school. A new general hospital in affiliation with the school provided space for the pathologic department, and a new library in which a section is set aside as a medical library was recently completed.

Anatomy Department Reorganized.—The department of anatomy of the University of Western Ontario, London, has been reorganized by its professor and chief, Dr. Charles C. Macklin. Dr. Henry Alan Skinner has been appointed assistant professor of anatomy, and Dr. Elliott N. Ballantyne, Carl G. Smith, B.A., and Dr. Wilfred K. Welsh are full-time instructors. The part-time instructors are Drs. H. Murray Simpson, Hermann E. Schaef, Leonard W. Pritchett, Robert A. Johnston, Hans O. Foucar and Madge T. Macklin. Messrs. Calder, Gilchrist and Rogers are student assistants.

Personal.—Dr. John Stewart, dean, faculty of medicine, Dalhousie University, Nova Scotia, celebrated his eightieth birthday, July 3.——An anonymous donor has contributed $50,000 to establish a chair of preventive medicine in Queens University, Kingston, in honor of Dr. Arthur Elliott, an alumnus, who formerly practiced in Belleville. The university hopes to obtain support from the government and others which will permit the erection of a public health building as a part of the faculty of medicine, with the idea of making it the center of health activities of the eastern counties of the province of Ontario.——Dr. Maurice M. Seymour has resigned as deputy minister of health of the province of Saskatchewan, having reached the retiring age. Dr. Seymour has been engaged in public health work in Canada for more than twenty years.

Rockefeller Foundation Helps Saskatchewan Health Units.—In 1927, the law was amended to provide for the formation of health districts in the province of Saskatchewan. There is to be with each unit a physician, sanitary inspectors, nurses, and a secretary who shall devote their whole time to

health work in that district. Before establishing a health district, the minister of health must submit the plan to the municipalities for approval. The cost of each district will be $14,000 a year, half of which will be paid by the rural municipalities and towns, 25 per cent by the province, and 25 per cent by the Rockefeller Foundation, New York, which will also pay for the special training of the personnel. The average cost to the municipality per capita will be 35 cents. It will be the duty of the units to inspect school children, control communicable disease, improve sanitation, stimulate interest in periodic health examinations, vaccinate school children, conduct preschool and prenatal clinics, visit the homes and give instruction there. The laboratory will be available to local practitioners without charge. Saskatchewan is said to be the first province in Canada to provide by law for the establishment of health districts; Dr. Maurice M. Seymour, Regina, formerly deputy minister of health of the province, has done much to aid in their establishment. Similar health units have been in operation in the province of Quebec for more than two years.

Society News.—The Massachusetts-Halifax Health Commission ceased activities in May. Several of the clinics which were conducted by the commission in Halifax will be continued under the direction of the Victorian Order of Nurses.——The Canadian Medical Association has decided to collect its annual dues from members in October, when financial demands are usually very heavy, instead of in January.——Dr. Robert G. Brett, Banff, has been elected president of the Alberta Hospitals Association for the ensuing year, and Dr. Thomas H. Whitelaw, Edmonton, president of the Alberta Association of Public Health Officers.——Dr. Reginald J. Wride, Atlin, B. C., has been appointed superintendent of the Whitehorse General Hospital, Whitehorse, Yukon.——The Vancouver Medical Association was addressed, November 6, by Dr. John M. Blackford, Seattle, on "The Clinical Side of Gallbladder Disease."——The citizens of Amherst, Nova Scotia, raised a subscription sufficient to present a check of $100 to each nurse who lost her personal belongings in the recent fire at the Amherst Hospital. It has been decided to rebuild the hospital on the site of the old building.——Paul N. Leech, Ph.D., director of the Chemical Laboratory of the American Medical Association, spoke before the Canadian Chemical Association, Toronto, November 23, on "Home Remedies—Claims vs. Composition." The chairman, Prof. A. Hunter, turned the chair over to Dr. Alexander Primrose, dean and professor of chemical surgery, University of Toronto Faculty of Medicine. Dr. Primrose gave a luncheon to a number of chemists, physicians and public health workers.

LATIN AMERICA

Marines Save Children in Isolated Nicaraguan Town.—A minister at Matagalpa, Nicaragua, has written to the headquarters of the U. S. Marine Corps, Washington, D. C., in gratitude for the saving of the lives of his two children, who were bitten by a rabid dog in that isolated community. Local physicians, who were unable to provide the Pasteur treatment, advised moving the children to Managua. The roads and rivers in October made it impossible to make the trip and an appeal was made to the physician attached to the third battalion, fifth regiment, second brigade, U. S. Marine Corps, who promptly provided material for the inoculations by means of an airplane which was unable to land but dropped the package where it could be secured. When the father wrote to Washington, both children were happy and well.

Yellow Fever in Rio de Janeiro—Sporadic cases of yellow fever were still being reported in Rio de Janeiro, October 4, according to the health section of the League of Nations. The eight cases reported the last four weeks occurred in previously infected foci. According to Dr. C. Fraga, director of the public health service of Brazil, yellow fever disappeared from the city in 1908, following a campaign to eradicate the disease, and cases have been reported very rarely since then until 1928, when it was probably imported from the northern states. There had been 108 cases from May to the end of September. The case mortality rate was 55.5 per cent. Of the 108 patients, ninety were taken to the hospital and a postmortem examination was made of all who died there. In the campaign of mosquito extermination, the city was divided into districts, each being under the control of a full-time chief medical adviser, assisted by forty medical students and eighty heads of sanitary squads; 1,800 men, working in couples, inspected every house in the city once a week. The last inspection showed that the index of the culicidae had fallen to 2 per cent. It was predicted, therefore, since the index of *Aedes aegypti* was still lower, that yellow fever would be promptly stamped out in Rio de Janeiro.

Government Services

Navy Personals

Comdr. Walter A. Bloedorn and Lieut. Comdr. Henry McDonald have been relieved from duty and placed on the retired list on account of physical disability. Capt. Adrian R. Alfred will retire December 9 as a result of having reached the age limit. Lieut. Forrest M. Harrison, naval hospital, New York, has tendered his resignation from the service.

Change of Station in the Army

Major Lee R. Dunbar, to U. S. Soldier's Home, Washington, D. C., for duty. Capt. Louis A. Milne to Fort Barrancas, Florida. Capt. Philip L. Cook to Fitzsimons General Hospital, Denver, on completion of his present tour in the Hawaiian Department. Major William A. Chapman to Walter Reed General Hospital, Washington, D. C., for observation and treatment. Major Fletcher O. McFarland to Fort Sam Houston, Texas. Capt. Hamilton P. Calmes to Fort Hayes, Columbus, Ohio. Major Roy K. Ogilvie, Chicago, as instructor in the Illinois National Guard. Major Rowland D. Wolfe, Fort Sam Houston, Texas. Lieut. Warren L. Whitten, Edgewood Arsenal, Maryland. Col. John H. Allen, Richmond, Va., on completion of his foreign service tour and the expiration of any leave granted for duty with the organized reserves of the third corps area. Major Paul M. Crawford, Fitzsimons General Hospital, Denver. Capt. Forrest R. Ostrander to the Canal Zone about December 22. Lieut. Col. Arthur S. Pendleton to his home to await retirement at the convenience of the government. Major George C. H. Franklin to Balboa Heights, Canal Zone, from his present station at Fort Clayton, Canal Zone. Major Charles P. Martin, retired, having been found incapacitated for active service on account of disability incident thereto. Capt. Frank C. Venn to Hawaiian Department for assignment to duty as flight surgeon. Capt. Harry R. Melton to Camp McClellan, Alabama. Capt. Robert M. Butler to Fort Ethan Allen, Vermont. Capt. Douglas H. Mebane to El Paso, Texas, for duty at the William Beaumont General Hospital. Major Henry F. Philips to Fort Bliss, Texas. Capt. John P. Beeson, Richards Feld, Mo., for duty as flight surgeon on completion of his present foreign tour. Major Raymond W. Bliss, Philippine Islands, about Feb. 6, 1929. Capt. James S. Brummett, Camp Stephen D. Little, Nogales, Ariz., on completion of his present tour of duty in the Philippine Islands. Major George W. Cook from Fort Oglethorpe, Georgia, to Fort Leavenworth, Kansas. Capt. John I. Meagher from the Army and Navy General Hospital, Hot Springs National Park, Ark., to Fort Benning, Georgia. Capt. Jarrett M. Huddleston from Fort Benning to the U. S. Army Dispensary, New York City. Capt. Lyle C. White on completion of his present tour in the Philippine Islands to Brooks Field, Texas. Capt. William P. Dingle has been relieved from duty at Fort Casey, Puget Sound, Wash., and assigned to station at Fort Bragg, N. C. Major Bonaparte P. Norville has been relieved from duty at Fort Sam Houston, Texas, and ordered to proceed to the Hawaiian Department. Capt. Robert M. Butler has been relieved from duty at Camp McClellan, Alabama, and ordered to proceed to Fort Leonard Wood, Maryland. Capt. Pernier A. Mix is relieved from duty at the Presidio, San Francisco, and will sail from that port about January 19 for duty in the Hawaiian Department. Capt. Harry A. Bishop is relieved from duty at Fitzsimons General Hospital, Denver, and assigned to Fort Benning, Georgia, after temporary duty at Carlisle Barracks, Pa., until about May 31, 1929. Col. Samuel J. Morris is relieved from duty at Fort Monroe, Virginia, and assigned to the surgeon general's office, Washington, D. C. Major Thomas D. Hurley is detailed as instructor with the Oklahoma National Guard, effective on completion of his present tour of foreign service. Major Ward S. Wells is relieved from duty at Walter Reed General Hospital, Washington, D. C., in time to sail from New York about Feb. 16, 1929, for the Philippine Islands. Lieut. Clifford A. Gray has been relieved from duty at the William Beaumont General Hospital, El Paso, Texas, in time to sail about February 6 from San Francisco for the Philippine Islands. Major Harry R. McKellar is relieved from duty at Fort Winfield Scott, California, in time to sail from San Francisco about February 6 for the Philippine Islands. On completion of their present tour of foreign service, Capt. Joseph R. Darnall will be assigned to Walter Reed General Hospital, and Capt. William W. McCaw to the Fitzsimons General Hospital, Denver.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Nov. 3, 1928.

The Marking of Imported Surgical Instruments

On the applications of the Surgical Instrument Manufacturers' Association and the Association of Dental Manufacturers and Traders of the United Kingdom, the standing committee under the merchandise marks acts has recommended that an indication of origin should be borne at the time of sale or exposure for sale by imported surgical, medical, dental and veterinary instruments and appliances, aseptic hospital and dental furniture, and dental supplies. The applicants stated that, in the absence of a mark of origin on imported goods, a purchaser would not know that he was buying imported material, and suggested that this confusion was increased by certain practices, such as the marking of goods in English, their description by English names in catalogues, importers representing themselves to be manufacturers, and sellers dealing in both British and imported goods. They asked that goods bear an indication of origin, not only at the time of sale or exposure for sale but also at the time of importation, and that wherever practicable a permanent mark should be required on imported goods.

The importers maintained that a marking order was unnecessary. They argued that the usual purchasers—surgeons, physicians or hospital authorities—knew whether the goods were British or imported, and that a purchaser could easily distinguish between the two by the fact that British-made goods were generally marked, and by the difference in price. The importers contended, moreover, that nothing should be done to restrict the supply of essential instruments, and maintained that the British manufacturers could not meet the whole of the trade demand. Objection was taken to an importation marking order on the ground that it would lead to serious delays at the custom house, while permanent marking would amount to a prohibition of importation, since physicians would not use instruments permanently marked with an indication of their foreign origin.

The committee concluded that, in the absence of a mark of origin on the imported goods, there was a reasonable possibility that purchasers might be misled as to their origin, especially having regard to certain catalogues that were brought to notice at the inquiry. It did not recommend that any class of these goods should bear an indication of origin at the time of importation, because of the administrative difficulty that would arise in connection with the custom house and also because of the danger of injury to delicate instruments at examination; it also desired to avoid needless interference with the reexport trade. It did not consider it necessary that the goods should bear a mark of origin when exposed for sale by a wholesale dealer. A permanent mark is not regarded as essential to give the necessary information to the purchaser at the time of sale or exposure for sale; it is suggested that an indication of a label securely attached to the goods should be sufficient. It was pointed out that any permanent mark must be applied before importation, as the die marking of steel goods except at the time of manufacture would not only involve injury but would increase the difficulty of sterilization, and that the alternative of etching would not be practicable in the case of plated goods.

Fairer Men and Taller Women: The Improved Physique of Londoners

In an article contributed to the *Westminster Gazette*, Mr. F. G. Parsons, professor of anatomy at London University and lecturer on anatomy at St. Thomas's Hospital, described distinct improvement in the physique of Londoners. It is generally supposed that urban life in England has favored an increase of dark at the expense of fair persons. But Mr. Parsons finds the opposite for Londoners. Following an earlier anthropologist, Dr. Beddoe, he classifies hair tints as fair, red, brown, dark brown and black; but, since it is not always easy to define the boundary line between them, spaces between these divisions are made, into which half-tints and doubtful shades may go and later on be divided equally between colors on either side. When the percentages of these different shades are worked out, those of the dark brown and black-haired people are added together and make a useful "hair index." An example will make this clear. In 1927, 1,485 adult male Londoners had a hair index of 27.4; that is to say, that percentage had either dark brown or black hair; but in 1860, according to the late Dr. Beddoe, 2,400 had an index of 39.7. This looks as if the London men were becoming fairer. In the women the change is more striking still, for their hair index has dropped from 42.7 in 1860 to 23.9 in 1927.

Before jumping to the conclusion that the Londoner has grown fairer in the sixty-eight years since 1860, one must remember that about that time the men wore their hair much longer than they do now, that they bathed and washed their heads much less often, and that antimacassars had to be placed on their chairs to guard against the various fats and oils with which they plastered their locks. It is therefore well to see whether eye color bears out the testimony of the hair. In 1927, 1,500 adult male Londoners gave an eye index of 33.2, while 2,565 London boys gave 33.1. Four hundred and eleven adult females had 35.3 per cent of dark eyes, while 1,922 London girls had 34.3 per cent. Sixty-eight years ago the male eye index for London was 35.7, against the 33.2 of last year, while the female one was 40.7 against 35.3. Thus the eyes, too, are growing lighter. This may point either to more healthy surroundings favoring the survival of Nordic children, or to a larger influx than formerly from the light colored northern and eastern parts of the country. Mr. Parsons then takes stature. He finds that a morning suburban train discharges crowds of young men and women at a London terminus remarkable for their size, splendid health and fine physique. These are the representatives of the great middle class, Mr. Parsons think, and are possibly the finest human specimens in Europe. To this class the London medical students belong. The youths average 5 feet 9 inches in height, while the girls have crept up from 5 feet 3 inches to 5 feet 5 inches during the last twenty years and show no signs of being content with that.

Mr. Parsons next notices the artisans pouring out of the works. Among these are some of the most skilful craftsmen in the world, and yet they seem a different breed from the boys just described. About 5 feet 6 inches in height would be a generous average to give them, while their rounded shoulders and slouching gait make them look shorter and less robust than they really are. Among these men are the survivors of the poor children of twenty or thirty years ago, who were pitiable little objects, unwashed, underfed and ill clothed, suffering from rickets, and enlarged glands in the neck. Only the strongest survived, and the wonder is that they have made so good a fight. Mr. Parsons thinks that this question of height depends more on environment and less on heredity than do any of the other racial characteristics and that, given proper rations of oxygen, food and water, the offspring of these men will surprise us by the quickness with which they will react to their surroundings and reach, in a generation or two, their hereditary racial maximum, which he believes is about 5 feet 9 inches. He inspected what the London County Council looks on as its worst school, which some of the children of these people attend. Although mentally and physically below the average of most of the other schools, they were certainly much healthier, cleaner and better nourished than the children he remembers running

about the streets thirty years ago, and he is sure that they will grow into finer men, and, probably, better citizens than their fathers. Rickets has gone, tuberculosis is going; eyes, skins, teeth and throats are treated skilfully and without cost to the sufferer; only the dreadful overcrowding at night still goes on, and must do so until the slum areas are broken up.

PARIS

(From Our Regular Correspondent)

Oct. 3, 1928.

Dangers from Public Swimming Pools

Professor Bordas, of the Collège de France and director of the Laboratoire d'hygiène of the prefecture of police, has called attention to the unhygienic condition of many swimming pools. There are in Paris some rather old swimming pools, and every day new ones are being added in large establishments of various kinds. These swimming pools are becoming very much in vogue, of late, and it is a common practice to take a plunge during the afternoon tea hour, and to sit afterward in bathing costume in the adjoining café and partake of a light repast. Notwithstanding their luxurious appointments, these swimming pools are subject to the laws of health just as much as the public pools, the first necessity being the frequent renewal of the water and a periodic cleansing of the reservoir. There are swimming pools in the suburbs that are used by from 1,200 to 1,400 persons in a day, though they contain only 700 cubic meters of river water renewed but once a week. The supervision is very loose, patrons not being required, in most places, to pass under the douche before entering the pool. It is evident that, under these conditions, diseases may be contracted by the bathers: conjunctivitis; inflammations of the throat, the nasal fossae, and the eustachian tube, and gastro-intestinal disorders. Bacteriologic analyses of the water of these pools show that they rapidly become contaminated with innumerable species of micro-organisms. Professor Bordas employs a special method for recognizing roughly, at first sight, such contaminations as are most prevalent. He filters 5 liters of the water under pressure through disks of white flannel; all the foreign matter is retained by the disks and may be collected and analyzed. The health service may impose a control and demand that the water in the pools be frequently renewed. It may even demand that the water be filtered or sterilized by javellization.

The Abuse of Sun Baths

Sun baths were much in vogue on all the beaches of France, during the recent summer, which was characterized by exceptional luminosity and heat. The long lines of bathers stretched along the sand for hours furnished a curious spectacle. The style demanded that the entire skin should take on the color of gingerbread. People took delight in acquiring their coat of tan; for by this evidence, they proved to their friends, on returning home, that they belonged to the leisure class that is able to afford the luxury of long vacations. But since for many that was not the case, they were forced to press into two weeks the effects of a long vacation. They therefore proceeded to expose themselves to the sun with a heroism that resulted in vast skin burns, phlyctenae, fever and general disorders, as is the rule in such cases. Shrewd pharmacists realized huge profits by selling to these "tan fans" various marvelous ointments that hastened the browning of the skin which they pretended to protect. Many physicians uttered warnings, and, through articles in the press, sought to put people on their guard against the ill effects of such a brutal form of heliotherapy carried out contrary to all the rules of prudence, and, furthermore, entirely useless, since cutaneous pigmentation is only a defense reaction of the skin, which, once accomplished, prevents the solar rays from penetrating more deeply and from exerting the favorable physiologic effects anticipated. Their warnings passed unheeded, as the dictates of fashion proved the stronger force. Of these counsels, many persons remembered only the prescriptions for browning the skin rapidly with the aid of potassium permanganate baths or ablutions in a decoction of walnut shucks. The female sex especially showed great indignation that science should have the effrontery to interfere with its fancies, and accused the physicians of recanting, since they were the very persons who had been the first to advise heliotherapy and to vaunt its benefits for the general health.

Consultations at Sea by Wireless

Consultations by wireless as a mode of aiding persons taken ill at sea on boats not carrying a physician are becoming more and more common. The large passenger steamers are required by law to have a physician on board, but merchant steamers and fishing boats are not unless the crew and passengers exceed a certain number. However, accidents and sudden diseases may develop among the sailors, and there is then no other resource than an elementary first-aid manual that hangs in the captain's cabin, to which the sailors have given the name of the "paper physician." It is evident that the "paper physician" cannot make a differential diagnosis between an attack of colic and an attack of appendicitis. All French boats of at least 1,500 tons, or transporting 150 persons, must be provided with a radio outfit, which enables them in case of accident to interrogate coastal stations or the steamers passing near them. Some coastal stations (Antwerp, Göteborg) can understand appeals in several different languages. Most of the French stations understand only French and English, the latter having been made obligatory, as it is the language most used among seamen. When such a wireless call is heard by a large steamer or by a coastal station, the physician present enters into a conversation with the boat calling, inquires as to the essential symptoms, and prescribes provisional treatment. Dr. Schoeffer, ship's physician of the *Jacques Cartier*, has published the list of inquiries that he has received, which includes a wide range of cases, such as burns, the projection of acid into the eye, hemoptysis, hepatic colic, appendicitis and fractures. Furthermore, by a decree dated September 20, ships must inform by wireless the health authorities of the port of disembarkation as to the health conditions on board and the number and the character of the patients that desire to disembark, and learn whether such patients will be accepted as private patients, in case there is an epidemic on board the boat or in the port, which will prevent the boat from being quarantined; for, in case of an epidemic in the port, the ship can, if it prefers, enter some other port on the coast, which is not under quarantine.

An American Nurse the Recipient of the Cross of the Legion of Honor

During a military parade held in the court of the Hôtel des Invalides, General Gouraud, in command of the city of Paris, distributed twenty crosses of the Legion of Honor and 103 military medals. Among the recipients of the cross, let me mention especially Madame Victor Morawetz. During the Great War, Madame Morawetz was in charge, in 1916 and 1917, of a canteen that served the Belgian army. At Bar-le-Duc and at Châlons, where, exposed to open bombardment, Madame Morawetz conducted a canteen at the railway stations, General Gouraud had observed in person the energy and devotion of this courageous woman, who was a member of the American Red Cross Society.

A Gift to the Société Médicale d'Aix-les-Bains

Lord Revelstoke, on terminating his sojourn at Aix-les-Bains, made a gift to the Société Médicale in the sum of 150,000 francs ($5,850) for the maintenance of the municipal laboratory, directed by Dr. Gerbay. The city is planning appropriations that will make it possible to install the laboratory in a special building.

TURKEY

(From Our Regular Correspondent)

Nov. 3, 1928.

The White Plague

In Turkey, tuberculosis ranks second to malaria in frequency. Owing to the absence of adequate control of the milk supply, the lack of health education, and the general destitution following many years of continual warfare, the increase of tuberculosis all over the country, and especially in the cities, is alarming. The isolated location of the villages, sunshine almost all the year round, the fact that men, women and children are spending most of the day outdoors working in the fields, and the total abstinence from alcohol seem to be the chief reasons for the lower incidence of tuberculosis in rural communities. The compulsory physical fitness certificate for marriage being only a recent requirement, the general postwar poverty, early marriage and absence of birth control are responsible for the higher incidence of the disease among women. While more pulmonary tuberculosis is seen in the cities, the inhabitants of rural communities are suffering more from arthritis, bone tuberculosis and glandular tuberculosis. Because of lack of funds, the ministry of hygiene, in the past, has not been able to take effective measures against this widespread disease, though there are special free dispensaries in Constantinople and Smyrna where free examination and treatment are given and where leaflets, pamphlets and brochures concerning tuberculosis are distributed. There is a fifty bed government sanatorium on a sunny island in the Sea of Marmora near Constantinople. The beds are always occupied and there is a long waiting list. Next year another fifty beds will be added. There are two private sanatoriums on the other islands. At the Constantinople municipal hospital, a new wing is being added for from fifty to a hundred beds for the gratuitous treatment of cases. In the 1929 budget the ministry of hygiene has made provision for an active campaign in communities where the incidence of tuberculosis is high.

Tuberculosis not yet being a reportable disease, accurate statistics are not available except for the city of Constantinople, where deaths have occurred during the last twenty-five years as shown in the accompanying table.

Deaths at Constantinople

Year	Total Deaths	Deaths from Tuberculosis
1902	14,771	2,753
1905	15,755	2,836
1909	26,630	2,864
1910	16,720	2,838
1912	21,662	2,886
1915	18,490	3,018
1918	30,645	3,515
1920	19,155	2,732
1922	16,156	2,685
1924	15,139	2,781
1926	13,520	3,424

During the last ten years the population of the city of Constantinople has varied from 850,000 to 1,000,000. In regard to the high death rates it should be taken into consideration that quite a number of sufferers from tuberculosis have come to Constantinople for treatment or other purposes from other parts of the country.

Malaria Institute at Adana

The malaria institute at Adana was formally opened, October 10, by Professor Dr. Hussameddin Bey, deputy minister of hygiene. Here all medical students graduating after 1927 and after termination of their one year postgraduate hospital service are obliged to take a three months' course in malariology, in which laboratory and field work will be an important part.

All physicians in government, local and municipal, as well as in military service having graduated before 1927 shall also take this three months' course to be arranged in order of accommodation and at institutions which the ministry of hygiene indicates. During the time of the course, physicians shall be considered on leave of absence with full salary. Twenty-four government and thirty-four army physicians have already commenced the course.

AUSTRALIA

(From Our Regular Correspondent)

Oct. 12, 1928.

Hospital Survey of America and Great Britain

The Victorian inspector of charities, Mr. R. J. Love, has just completed an investigation of hospitals and other charitable institutions and social activities in New Zealand, Canada, the United States and the British Isles. The object of the tour was to collect plans and data which would be applicable to future extensions or alterations of hospitals in Victoria, and which would assist in the formulation of the hospital policy of the state. His conclusions may be thus summarized: The establishment of community hospitals is strongly advocated. Community hospitals in the United States were not as numerous as was expected. The plant and layout of many North American and some British hospitals are admirable. The best ground scheme for Victorian use is the double Y type. Adaptation of unsuitable buildings to modern requirements is not satisfactory. The optimal size of hospitals is 1,000 beds. The number of hospital beds for all purposes and classes should be 1.05 per cent of the population. Coordination of hospitals is both practicable and efficient. New Zealand has an approach to a hospital system comparable to that of Victoria; other countries have only independent units. Efficient control of hospitals is best obtained by means of one head responsible to the committee. Special training is essential to insure efficient and economical management. The trained lay superintendent is held, on the whole, to be preferable to a medical superintendent. A hospital that does not install a proper dietitian's department should not be regarded as up to full standard. Hospital auxiliaries exist in all countries visited. It is unwise to try to bring these under any form of central control. Training of matrons should include institutional management. A qualified commission of industrial survey experts should investigate the working conditions of nurses. The study of schemes for monetary contributions demonstrated the ideal of concentration of systematic collections of regular sums. Benefit schemes under stystematic contributions are not advocated. Coordination of all health activities in the broadest sense is essential for efficiency and economy.

The "Medical Follies" in Victoria

Attempts are being made to have legislation introduced to protect credulous people from unskilled and irregular treatment by herbalists, oriental mystery men, naturopaths and other -paths. These practitioners are all included in the generic term "quacks." The state government has expressed itself as being prepared to consider any request for legislative control, but in 1925 when Dr. Argyle, who was then chief secretary, endeavored to introduce a measure, such strong opposition was encountered that it had to be abandoned. As the law stands at present, medical quacks are only prohibited from recovering fees by legal process, and from signing death certificates. The first restriction is usually overcome by the demand of a "registration fee" prior to consultation.

Prohibition Poll in New South Wales

September 1, the population of the state of New South Wales (about 1,250,000) was asked the question, "Are you in favor of prohibition with compensation? In every one of the ninety voting districts of the state the answer was in the negative. The state majority against the proposal was about half a million.

On the same date, the population of the federal capital territory was asked a similar question with a similar answer.

Up till then no liquor had been allowed to be sold in the territory, but steps will now be taken to give effect to the wish of the community. The liquor trade will henceforward be conducted under license.

RIO DE JANEIRO

(From Our Regular Correspondent)

Oct. 15, 1928.

Treatment of Blastomycosis with Methylthionine Chloride and Acriflavine

Prof. Aguiar Pupo recently discussed the treatment of blastomycosis before the Medical Society of São Pablo. Blastomycosis caused by *Coccidioides immitis* is differentiated from the other forms of blastomycosis on account of its frequency in Brazil, where more than a hundred cases have been recorded in medical literature. Malignant infection begins with destructive lesions of the skin and of the buccopharyngeal and intestinal mucosa, spreading secondarily to the lymphatic system, where it results in multiple adenitis with abundant formation of pus and ulcers of the skin contiguous to the affected lymph glands. In the advanced stages the patient complains of fever, with weakness. Death due to cachexia and multiple visceral lesions occurs after six months or a year of illness. The various forms of blastomycosis can be identified by João Montenegro's blood test. In the acute forms the disease is a low grade pyemia with subcutaneous abscesses and visceral lesions. In a case observed by Miguel Pereira and Gaspar Vianna the patient died after four months of illness. The clinical varieties most frequently observed permit classification of the forms of blastomycosis caused by *Coccidioides immitis* as: 1. Tegumentary form, with cutaneous and mucosal lesions, which have been distinguished in their morphologic aspects by such nationally known dermatologists as Fernando Terra and Eduardo Rabello. 2. Lymphatic form, resembling Hodgkin's disease, studied by Haberfeld and Alves Arantes, and designated as malignant coccidioidal lymphogranuloma. 3. Primary visceral form, with foci in the liver, spleen, lungs, intestine and appendix, metastasizing to the peritoneum, described by Gaspar Vianna, Haberfeld, Garini, Floriano de Almeida and Lourival Santos. 4. Mixed form, most frequently cases with cutaneous and mucosal lesions, with involvement of the lymphatic system and the viscera, as the result of the generalization of the disease.

Such an infection, comparatively frequent here, largely malignant, and highly fatal, is of great therapeutic interest. The most important work regarding this is that of Prof. Aguiar Pupo, who has presented four cases with cure, in two of which he made intravenous injections and local applications with methylene blue (methylthionine chloride, U. S. P.) and acriflavine, or injections only of 10 cc. of 1 per cent methylene blue, or alternated with injections of 5 cc. of 0.5 per cent trypaflavine, according to the seriousness and obstinacy of the case.

Toxicity of Scorpions' Poison

Dr. Octavio de Magalhães worked in Bello Horizonte with the poison of three kinds of scorpions: *Tithyus bahiensis* C. L. Kock, 1836, *Tithyus serrulatus* Lutz-Mello, 1922, and *Bothriurus*. In the study of the third species more than 13,640 individual observations were made covering the action of the poison on ninety-seven species of living beings, from *Chlamydosaurus* to *Homo sapiens*. The poison of Brazilian scorpions is not of a general cellular toxic nature; depending on the type, it has immediate or delayed action on the cerebrospinal or sympathetic nervous system: Group 1 is manifested by reflex sensorimotor disturbances of tonus and of equilibrium; group 2 by sympathetic disturbances of the external and internal secretions, the circulation, and pilomotor tonus. Diarrhea is a vagotonic symptom and polyuria a reflex symptom like all phenomena of secretion. Prof. Aguiar Pupo found by using this poison a true center in the brain of the hen that controls the secretion of tears. Among the motor lesions are monoplegia, paraplegia, cerebral diplegia, generalized convulsions, nystagmus, and opisthotonos. In these two groups the late nervous phenomena consist of paralysis and contractors. The first, either by direct lesions of the nerve cells or by indirect attack on the vascular endothelium, provoke secondary hemorrhages in the nervous tissue. The contractures and direct paralysis sometimes disappear in time without leaving evidence of having occurred. Tears, both bloody and milky, are produced with the poison of *Tithyus bahiensis* and *T. serrulatus*. The temperature of the poisoned patients indicates nothing, and there was no change in weight of any importance.

The poison of *Tithyus bahiensis* and *T. serrulatus* contains hemolysin, hemorrhagin, leukocytolysin, agglutinin and neurotoxin. The poison of *Tithyus serrulatus* causes proteolytic action, and both cause weak anticoagulative action. There is leukopenia and oligocythemia, although lymphocytosis (extensive and slight) often occurs. Anemia is a common result. In acute poisoning the refractive index of the blood serum shows a slight decrease, with diminished density of the blood and viscosity of the serum. In subacute poisoning there is evidence of decreased globular resistance. The poison of *Tithyus bahiensis* and *T. serrulatus* has lipolytic action in vivo and in vitro.

The antiscorpionic serum which Prof. Aguiar Pupo prepares is specific and 10 cc. can neutralize at least fifty mortal doses. The results of applying this treatment in nineteen cases of poisoning were satisfactory.

Studies on the Eberthella Buchanan 1918 Genus of the New Pseudotyphoid Bacilli Eberthella Tarda and Eberthella Oedematiens

In accordance with the classification suggested by the North American Society of Bacteriologists compiled in Bergey's Manual (1923), Dr. Arlindo de Assis considers that only the motile species of the genus *Eberthella* Buchanan 1918 must be designated as pseudotyphoid bacilli, or, according to the gram-negative modifications, those not pigmented nor producers of acetyl-methyl carbinol, and capable of acidifying some carbohydrates without producing gas.

The present communication concerns two motile samples of the *Eberthella* genus isolated from human feces of suspected cases of bacillary dysentery and remitted to the Brazil Vital Institute, where they have been designated as *Eberthella tarda* because of the delay in acidification of lactose and salicin, and *Eberthella oedematiens*, because of the edematous lesions caused by the organism in sensitive animals. After an exhaustive bacteriologic study of the two species, Prof. Aguiar Pupo says:

In the index to Bergey's manual (**3**:244) the motile species of the genus *Eberthella* Buchanan are subdivided according to whether or not they attack lactose. The two species which we are studying belong to the former, although in both the fermentation of the lactose occurs late.

According to Bergey, all the motile eberthellas that acidify lactose also produce acid (without gas) in mannitol. As *Eberthella tarda* is entirely inactive in relation to this alcohol, it is thus easy to discover its systematic situation, separated as it is in this species from the minute study of its other properties.

The classification of *Eberthella oedematiens* would seem at first to coincide with that of *Eberthella belfastiensis*, so called by Wilson, Bergey and others, corresponding to Wilson's *Bacillus belfastiensis* II from its general characteristics of motility, acidification of lactose and mannitol, and absence of activity in dulcite and in the presence of indol. The organism, *B. belfastiensis* II, isolated from urine in a case of human cystitis by W. Mair, and studied by Wilson, presents even more points of contact with our second species, such as increase in acidification of sucrose, glycerin, maltose, levulose, galactose and arabinose, and a lack of activity in dulcite, erythrite and

inulin. But, contrary to Mair and Wilson's bacillus, *Eberthella oedematiens* is endowed with increased proteolytic power (liquifying gelatin, and coagulated serum, acidifying dextrin and destroying the activity of rhamnose, sorbite and raffinose, besides coagulating and peptonizing milk). Thus these characteristics, in addition to those recently studied by us, are sufficient to justify the creation of the new species *Eberthella oedematiens*.

With the addition of these two species of ours, the North American classification will have to undergo the following modification which affects the motile species of the genus *Eberthella:*

Genus XV. *Eberthella* Buchanan 1918 (partial indication).
A. Motile:
1. Inactive in lactose, etc.
2. Acid in lactose:
(*a*) Acid in mannitol.
(*b*) Inactive in dulcite.
(*c*) Without indol. 8. *Eberthella pyogenes.*
(*cc*) With indol.
(*d*) Without liquefaction of gelatin. 9. *Eberthella belfastiensis.*
(*dd*) With liquefaction of gelatin. 10. *Eberthella oedmatiensis.*
(*bb*) Acid in dulcite:
(*c*) With indol. 11. *Eberthella bentolensis.*
(*aa*) Inactive in mannitol. 12. *Eberthella tarda.*

BERLIN

(From Our Regular Correspondent)

Oct. 13, 1928.

The New Mortality Tables for Germany

Since the census of June 16, 1925, the Statistische Reichsamt (federal bureau of statistics) has prepared new mortality tables for the years 1924-1926 and has published the chief results in *Wirtschaft und Statistik* (No. 12, 1928). Previous to this, complete mortality tables had not been published since 1911 owing to the lack of an exact census. The value of these tables is evident: they furnish exact information in regard to actual conditions in Germany. The tables contain the records of life expectancy based on the percentage of persons of a certain age group who die within a year. The medical statistician Prinzing points out in the *Deutsche medizinische Wochenschrift* that the new tables show an unexpectedly favorable trend in mortality.

The decrease in mortality is especially marked for the ages 1 to 4 in both sexes. The mortality for the ages 3 to 5 is less than one fifth that recorded for the decade 1871 to 1881. Infant mortality also has declined considerably. The decrease in mortality for the ages 15 to 25 is, on the other hand, very slight, especially in males. The mortality for the ages 20 to 25 is higher than for the ages 30 and 35. A rapid rise of mortality in males aged 20 was noted also in former mortality tables, but the increase was not so marked. In females the mortality for the ages 30 to 35 is still high; this is now the only period of life in which the mortality in women is higher than in men. The article in *Wirtschaft und Statistik* ascribes the greater mortality in women during the period cited to constitutional weakness associated with the attainment of sexual maturity. In women there is also the hazard of childbirth, while in young men the entrance on a life profession or calling, the migration to the city with its manifold dangers, and youthful indiscretions are hazards to be considered. In males, during the ages 20 to 30, from 20 to 25 per cent of the deaths are due to suicide and accident, and 40 per cent to tuberculosis. The reduction in mortality over former tables is less for females of the ages 35 to 60 than for males, and for the ages above 60 the reduction is slight for both sexes. The general mortality in Germany for 1924-1926 was 11.9 per thousand of population. The result of the decline is an increase in the average length of life. This amounts to twenty years for the new-born of the period 1871-1880.

Among the European countries, Denmark for a number of years has had more favorable mortality figures than either Germany or England. In Scotland in 1901-1910, the average length of human life was a little lower than in Germany; England, however, had at that time a longer life expectancy for the new-born, by four years, for both sexes. Since then conditions have changed considerably; for male children the life expectancy is longer in Germany, but for female children it Is longer in England. In England, males die, after the age of 40, somewhat more rapidly than in Germany; females, after that age, die more rapidly in Germany.

The reduction of mortality in Germany for the ages 15 to 25 is very slight, as compared with the period 1901-1910, especially with respect to males. These are the age groups which, during the war, were from 5 to 17 years old. It may be reasonably assumed that the children who grew up during the food scarcity that prevailed during the later years of the war did not have, later, the same resistance as children who grow up under more favorable conditions.

Music in Relation to Medicine

In an article in the *Deutsche medizinische Wochenschrift*, Dr. Kurt Singer, the acting manager of the Berlin municipal opera and the director of the Berlin Aerztechor (a singing society composed of physicians—Dr. Singer being likewise a physician), discusses the relations between music and medicine. The friendship that existed between the Vienna surgeon Billroth and the musician Brahms is well known. Possessed himself of a high musical training, Billroth's book "Wer ist musikalisch?" (Who Is Musical?) paved the way for a whole series of works dealing with the esthetics of music. Under the same title the Freiburg physiologist von Kries has recently published a book in which he explains the action of music on the human mind by which it achieves its esthetic and ethical value. Haecker, Ziehen and Kammerer have made researches on the hereditary transmission of musical talent. The Berlin physiologist W. Trendelenburg published a theoretical and practical monograph on the art of playing stringed instruments, treating the subject from all angles of physics and physiology. Löwy and Schrötter instituted researches on the energy consumption of pianists. Max Dessoir, in his work on "Aesthetik und Kunstwissenschaft," has made an important contribution on the esthetics and psychology of music, and in his works on the therapeutic value of music Dr. Singer has utilized much of the material furnished by Dessoir.

Flesch and Singer have discussed in their textbooks the occupational diseases of musicians. Professor Dr. Pollack (recently deceased), who was a virtuoso on the pianoforte, having made a tour of America, together with Kreisler, and having played with Madame Teresa Carreño, and also Zander, the director of the Berlin Volkschor, were physicians. Many physicians, such as Barth, Gutzmann, Flatau, Katzenstein, Nadoleczny and Nadolowitsch, have made important contributions to the physiology of singing. De Bary and Briesemeister, who achieved world fame as singers, were medical men. The performances of several medical men in Berlin, to mention only His, Czerny, Fedor Krause, Simons, Wolff (also a composer of note), M. Cohn, Lewandowsky, Ziegler, Schilling, surpass the achievements of the average amateur instrumentalist. Many physicians have studied the physiologic influence of music on patients and normal persons, and among the effects of pleasurable sensations they mention a retardation of the pulse and the respiration. The strongest pleasure sensations are produced by well known musical selections. French scientists contend that music in the minor mode scarcely influences the blood pressure, while music in the major mode increases it considerably. That the capacity to perform work is increased by music has long been known. Gangs at hard labor and men on the march often sing as a means of lightening their tasks. The ancient lands of the Old Testament, and also classical Greece, knew the therapeutic value of music. The New Testament contains many examples of soul sufferers being aided by music. Singer mentions that spoken words may fall as music on the ears of some patients with the usual psychic effect.

Marriages

BLACKBURN WILSON LOWRY, Tampa, Fla., to Miss Helen Jean Heffron of Sewickley, Pa., in New York, October 27.

CAREY WINSTON DURHAM, Sanford, N. C., to Miss Alberta Emily Rodgers in Washington, D. C., November 29.

NORMAN J. HAVERLY, Lieut. Commander, M. C., U. S. Navy, to Miss Katharine Lentz of Omaha, recently.

LA MAR HAY DAVENPORT, Dubois, Pa., to Miss Mary Adderty in Rochester, Minn., November 3.

MARC W. BODINE, Rochester, Minn., to Miss Martha Weare, at Cedar Rapids, Iowa, November 3.

ORVA T. KIDDER, Fort Wayne, Ind., to Miss Inez Virginia Clark of Columbia City, October 10.

FRANCESCO MOGAVERO to Miss Miriam Renninger Bechtel, both of Philadelphia, October 11.

HAROLD WALLING SMITH to Miss Olga Egri, both of Huntington, W. Va., September 26.

GLENN S. EVERTS, Lincoln, Neb., to Miss Fara Mae Biddle of Harrisburg, Pa., recently.

WARREN I. HINKLE, Portland, Maine, to Miss Fern Percival of Barada, Neb., recently.

DAVID DODGE MOORE to Miss Margaret L. Hatch, both of New York, November 14.

DAVID A. DOTY, Denver, to Miss Alice O'Brien of Fort Collins, Colo., recently.

A. LARSON to Miss Verna N. Thompson, both of Fertile, Minn., in October.

CLAUDE L. DAVISON, Los Angeles, to Miss Ida Iben, recently.

Deaths

Frederic Kammerer, Bern, Switzerland; University of Freiburg, Germany, 1880; formerly professor of clinical surgery, Cornell University Medical School, and the Columbia University College of Physicians and Surgeons; member of the American Surgical Association; served during the World War; at one time on the staffs of the German Hospital, now known as Lenox Hill Hospital, and the St. Francis Hospital; aged 72; died, September 26, at Merano, Italy, of cerebral hemorrhage.

Charles Banks McNairy, Lenoir, N. C.; College of Physicians and Surgeons, Baltimore, 1893; member of the Medical Society of the State of North Carolina, and the American Psychiatric Association; past president of the American Association for the Study of the Feebleminded; formerly superintendent of the Caswell Training School, Kinston; trustee, Catawba College, Newton, and the Claremont College, Hickory; aged 61; died, October 29, of angina pectoris.

Wallis Wyatt Durham, Lakeland, Ky.; Hospital College of Medicine, Medical Department Central University of Kentucky, Louisville, 1905; member of the American Psychiatric Association; served during the World War; superintendent of the Central Kentucky Hospital, Lakeland, and formerly superintendent of the Western State Hospital, Hopkinsville; aged 47; died, November 7, at St. Joseph's Infirmary, Louisville, following an operation for gallstones.

Francis Marion Wall ⊕ first lieutenant, U. S. Army, retired, Long Beach, Calif.; Kentucky School of Medicine, Louisville, 1888; served for ten years in the medical reserve corps; veteran of the Spanish-American and World wars; was commissioned first lieutenant in the Medical Corps, U. S. Army, March 15, 1927, by a special act of Congress, and was retired on the same date; aged 75; died, October 17, of heart disease.

Clement Jacob Halperin ⊕ Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1904; clinical professor of dermatology and syphilology at his alma mater; aged 45; on the staffs of the Bellevue Hospital, New York, Irvington (N. J.) General Hospital and the Beth Israel Hospital, Newark, where he died, September 30.

George Selwin Allison, Spokane, Wash.; St. Louis Medical College, 1871; Bellevue Hospital Medical College, New York, 1882; member of the Washington State Medical Association; formerly member of the school board; aged 80; died, October 18, at Santa Monica, Calif., of chronic endocarditis and myocarditis.

Edward Frank Guild, Chelsea, Mass.; Dartmouth Medical School, Hanover, 1893; member of the Massachusetts Medical Society; formerly chairman of the board of health of Chelsea and city physician; on the staff of the Chelsea Memorial Hospital; aged 64; died, October 12, of angina pectoris.

William Clyde Etzler, Wheeling, W. Va.; University of Pennsylvania School of Medicine, Philadelphia, 1891; member of the West Virginia State Medical Association; at one time city health officer; formerly member of the school board; aged 58; died, November 5, of heart disease.

George Columbus Morris, Savannah, Tenn.; Kentucky School of Medicine, Louisville, 1894; member of the Tennessee State Medical Association; past president of the Hardin County Medical Society; county health officer; aged 74; died, October 23, of paralysis and pneumonia.

Joseph H. Holland, Riverside, Calif.; Hahnemann Medical College and Hospital, Chicago, 1888; member of the California Medical Association; past president of the Riverside County Medical Society; aged 73; died, May 31, of embolism of the coronary artery and myocarditis.

William Niergarth ⊕ Pekin, Ill.; University of Munich, Germany, 1889; past president of the Tazewell County Medical Society; at one time county coroner; formerly on the staff of the Pekin Public Hospital; aged 64; died, October 24, of pericarditis and thrombosis.

George Ransom Faircloth, Baltimore; Maryland Medical College, Baltimore, 1909; member of the Medical and Chirurgical Faculty of Maryland and the Medical Society of Virginia; aged 45; died, September 28, at the Union Memorial Hospital, of cerebral hemorrhage.

Robert McEwen Phelps, Faribault, Minn.; Rush Medical College, Chicago, 1885; member of the American Psychiatric Association; formerly on the staffs of the Rochester (Minn.) State Hospital and St. Peter (Minn.) State Hospital; aged 70; died, October 22.

Jacob B. Perkins, Franklin, Ill.; Cincinnati College of Medicine and Surgery, 1895; member of the Illinois State Medical Society; formerly chairman of the local board of health and member of the school board; aged 66; died, October 10, of heart disease.

Edward James Clark, Lowell, Mass.; Dartmouth Medical School, Hanover, N. H., 1901; member of the Massachusetts Medical Society; for many years superintendent of the Lowell Corporation Hospital; aged 49; died, November 4, of coronary sclerosis.

Nils Roth H. Juell, Santa Rosa, Calif.; Rush Medical College, Chicago, 1884; member of the California Medical Association; past president and secretary of the Sonoma County Medical Society; aged 78; died, August 25, of angina pectoris.

Victor Vincent Kellner, Maribel, Wis.; University of Illinois College of Medicine, Chicago, 1914; member of the State Medical Society of Wisconsin; aged 37; died, September 18, at St. Joseph's Hospital, Milwaukee, of hypertensive nephritis.

William K. McCardell, Livingston, Texas; Bellevue Hospital Medical College, New York, 1880; member of the State Medical Association of Texas; county health officer; for many years president of the school board; aged 70; died, June 8.

Carl Mark Post ⊕ Des Moines, Iowa; Drake University College of Medicine, Des Moines, 1913; aged 49; died, October 21, in a sanatorium at Battle Creek, Mich., of septicemia due to abscess in the left hip joint, as the result of an injury.

Clayton Adelbert Becker, White Plains, N. Y.; Medical Department of the University of the City of New York, 1875; formerly bank president; aged 78; died, October 31, at Harrison, of hypernephroma with bone and glandular metastases.

Prescott Campbell MacArthur, Winnipeg, Man., Canada; University of Manitoba Faculty of Medicine, Winnipeg, 1907; formerly lecturer in pediatrics at his alma mater; on the staff of the Children's Hospital; aged 51; died, August 20.

George T. Harding, Marion, Ohio; Homeopathic Hospital College, Cleveland, 1873; Civil War veteran; father of the late President Harding; aged 84; died, November 19, of cerebral hemorrhage (THE JOURNAL, November 17, p. 1556).

Joseph Hemphill ⊕ West Chester, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1897; aged 58; on the staff of the Chester County Hospital, where he died, September 29, following an operation for appendicitis.

William D. Faust, Ada, Okla.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the Oklahoma State Medical Association; aged 63; died, October 20, of carcinoma of the stomach.

⊕ Indicates "Fellow" of the American Medical Association.

Frederick A. Sutton ✠ Orange, N. J.; Cornell University Medical College, New York, 1907; for many years on the staff of the Hospital for Women and Children, Newark; aged 47; died, October 19, of heart disease.

Arthur W. K. Downes, Chicago; Hahnemann Medical College and Hospital, Chicago, 1903; aged 57; died, February 16, at the Toronto General Hospital, Toronto, Ont., Canada, of endothelioma of the rectum.

James E. Waite ✠ Lodi, Ohio; Western Reserve University School of Medicine, Cleveland, 1882; on the staff of the Lodi Hospital; aged 75; died, September 29, of uremia following a prostatectomy.

Murray Lee Chapman ✠ Temple, Texas; University of Texas School of Medicine, Galveston, 1898; on the staff of the King's Daughters Hospital; aged 58; died, November 9, of cerebral hemorrhage.

Isaac Newton Oakes, North Ridgeville, Ohio; Miami Medical College, Cincinnati, 1876; member of the Ohio State Medical Association; aged 79; died, September 22, at Lodi, of angina pectoris.

Mary D. Hudson, Kennewick, Wash.; Southwestern Homeopathic Medical College and Hospital, Louisville, Ky., 1898; aged 58; died, October 5, at Sunnyside, of cerebral hemorrhage.

Theodore Tennyson ✠ Minneapolis; Missouri Medical College, St. Louis, 1898; on the staff of the Swedish Hospital; aged 59; died, October 29, at Los Angeles, of uremia and nephritis.

Samuel Martin Malone, St. Louis; St. Louis College of Physicians and Surgeons, 1914; aged 50; died, October 22, at the Barnes Hospital, of heart disease, nephritis and pulmonary infarct.

James Thomason Muir, Colorado Springs, Colo.; Colorado School of Medicine, Boulder, 1894; aged 71; died, October 17, at the Beth-El Hospital, of carcinoma of the prostate gland.

Richard Emil Mohrmann, Spokane, Wash. (licensed, Washington, 1899); aged 59; died suddenly, September 14, at the home of his mother-in-law in Tacoma, of heart disease.

Alvin Clayton Woodley, Binghamton, N. Y.; Trinity Medical College, Toronto, Ont., Canada, 1886; aged 55; died, September 21, at the Binghamton City Hospital.

David Taylor Johnson, Fort Smith, Ark.; Bellevue Hospital Medical College, New York, 1870; Confederate veteran; aged 81; died, November 4, of myocarditis.

Joseph C. Hughes, Eustis, Fla.; College of Physicians and Surgeons, Keokuk, Iowa, 1871; aged 79; died, September 23, as the result of an injury received in a fall.

George Lee McCutchan, Canton, Mo.; Medical Department of Washington University, St. Louis, 1902; aged 52; died, September 29, of bronchopneumonia.

James Alpheus Butler, Tampa, Fla.; Howard University School of Medicine, Washington, D. C., 1900; aged 49; died, April 2, of carcinoma of the stomach.

John H. Connell, Covington, Tenn.; Meharry Medical College, Nashville, 1908; aged 45; died, October 26, of interstitial nephritis and diabetes mellitus.

John B. McNerthney ✠ Tacoma, Wash.; University of Minnesota Medical School, Minneapolis, 1899; aged 54; died, September 17, of heart disease.

William Hunt Burress, Baldwyn, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; aged 53; died, October 24, of a self-inflicted bullet wound.

James Joseph Heffron ✠ Milwaukee; Milwaukee Medical College, 1904; served during the World War; aged 49; died, November 4, of pneumonia.

Samuel M. Scott ✠ Oakdale, La.; Medical Department of Washington University, 1900; aged 55; was killed, October 27, in an automobile accident.

James Sherman Barnard, Rochester, N. Y.; Hahnemann Medical College of Philadelphia, 1882; aged 71; died, October 20, of chronic myocarditis.

Hiram W. Richmond, Cleveland; Homeopathic Hospital College, Cleveland, 1882; aged 71; died, October 10, of carcinoma of the prostate.

Henry F. Fischer ✠ Springdale, Pa.; Maryland Medical College, Baltimore, 1908; aged 58; died, October 25, of cerebral hemorrhage.

Henry McCall, Fort Gibson, Okla.; University of Nashville Medical Department, 1873; aged 69; died, July 18, of nephritis.

Bureau of Investigation

PFUNDER'S STOMACH TABLETS

Frederick H. Pfunder, Ph.G., of Minneapolis, sells a "patent medicine" that he calls "Pfunder's Stomach Tablets, A Remedy for Ulcers of the Stomach." Mr. Pfunder states that he does not represent his tablets as a "cure-all" but "in every case where indicated, they have proven to be highly efficient."

More than two years ago (in July, 1926) a letter was sent to Mr. Pfunder by the Chemical Laboratory of the American Medical Association, asking whether he was willing to give any information regarding the medicinal ingredients of Pfunder's Stomach Tablets. Mr. Pfunder replied as follows:

"In answer to your inquiry, will say that if you will correspond with the Ely Lilly Co. that they will give you all the information that you may require. This company is making the tablets for me, and I presume that they will know better than I, how to handle the matter. In any case I want the Medical profession to know that I am not trying to put over any fake. If you do not get satisfaction from the above mentioned company I will be glad to take the matter up with you personally."

The Laboratory then wrote that it would prefer to have the information from Mr. Pfunder rather than from any pharmaceutical concern that might be making his product, but all subsequent letters sent to Mr. Pfunder, even though they went by registered mail, were unanswered.

From the large number of inquiries received regarding this nostrum, it seemed desirable to examine the tablets. The Bureau of Investigation, therefore, turned over to the A. M. A. Chemical Laboratory an unopened, original package of Pfunder's Stomach Tablets, with the request that an analysis be made of the preparation.

After receiving the chemists' report on the Pfunder's Stomach Tablets, the Bureau of Investigation wrote to Mr. Pfunder, telling him that it had received a number of inquiries regarding his preparation and asking whether he cared to give any information regarding his product that would enable the Bureau to answer such inquiries intelligently. Mr. Pfunder replied that he was willing to give any information relative to his tablets "except to reveal the formula." In other words, he was willing to give any information except the very information that would make it possible to express an opinion on the merits of the product. The Laboratory report follows:

LABORATORY REPORT

"One original package of 'Pfunder's Stomach Tablets' (F. H. Pfunder, Ph.G., 4820 Garfield Avenue, South, Minneapolis), price $3, was submitted to the A. M. A. Chemical Laboratory for examination. The label on the bottle contained the following directions. 'A tablet after each meal. Drink a glass of milk or cream between meals.' The package contained 100 large white, odorless tablets, having a slightly saline taste. The average weight of each tablet was 2.4 Gm. (37 grains), with a variation of 0.9 per cent below to 1.7 per cent above.

"Qualitative tests indicated the presence of starch, carbonates, nitrates, bismuth, magnesium and sodium. There were no phosphates, chlorides, alkaloids, phenolphthalein, emodin-bearing drugs, aluminum, zinc or calcium found. An aqueous suspension of the pulverized powder was alkaline to phenolphthalein. Under the microscope, starch grains and talc were seen; there was also present material in considerable amount having characteristics of protein matter, similar to pepsin in appearance. Digestive experiments, following in general the U. S. P. methods under pepsin and under pancreatin, failed to show the presence of any enzymic activity.

"Quantitative determinations yielded the following:

Loss on drying at 100 C	9.53 per cent
Loss on drying over sulphuric acid	3.98 per cent
Talc (acid insoluble)	2.30 per cent
Bismuth (Bi^{+++})	21.61 per cent
Magnesium (Mg^{++})	13.79 per cent
Sodium (Na^{+})	6.68 per cent
Bicarbonate (HCO_3^{-}) calculated from carbon dioxide	17.73 per cent
Starch	6.10 per cent

"Based on the foregoing, it may be calculated that Pfunder's Stomach Tablets contain as essential ingredients:

Bismuth subnitrate, U. S. P.	30.5 per cent
Magnesium oxide, U. S. P.	22.8 per cent
Sodium bicarbonate, U. S. P.	24.4 per cent

"Each tablet, therefore, would be equivalent to approximately:

Bismuth subnitrate	0.714 Gm.
Magnesium oxide	0.548 Gm.
Sodium bicarbonate	0.586 Gm.

"Each daily dose (3 tablets) would be equivalent to bismuth subnitrate, 2.1 Gm. (33 grains); magnesium oxide, 1.6 Gm. (25 grains), and sodium bicarbonate, 1.8 Gm. (27 grains)."

From the results of the chemists' work, it appears that this remedy for stomach ulcers is essentially a mixture of bismuth subnitrate, magnesium oxide and baking soda.

Correspondence

LEGISLATION AGAINST ANIMAL EXPERIMENTATION

To the Editor:—It is reported that during the session of Congress now opening a bill will be introduced to prohibit the use of animals for medical purposes or scientific investigations in the District of Columbia. Doubtless the opposition to this bill from the medical and scientific side will be presented at a public hearing before a committee of Congress; and on both sides personal and private influences will be brought to bear on the legislators. Probably the bill will fail of passage.

Will the efforts of the antivivisectionists, who are sponsoring this bill, thereby fail of effect? I think not. Every effort of this sort by the opponents of animal experimentation draws the lines a little tighter. It is now altogether possible that within a few more years their first object will be attained. It will be made illegal and nearly impossible to obtain dogs for experimental purposes or to carry out experiments on them. Thereafter the exclusion of the horse, the rabbit, the guinea-pig and the rat from laboratory use may, or may not, succeed. For the present the only topic that is practical politics is the obtaining and use of dogs without violation of law. On this point the fight for science is nearly lost. In many places it is to all intents already lost. The policy of "lying low" and saying as little as possible, which the supporters of animal experimentation have followed in the past, fails sooner or later everywhere. The agents of the antivivisectionists know exactly what they are after. Their first step in the state of Connecticut, for instance, has been to require the dog wardens to sell no dog for less than $5. With other expenses added, the cost for each animal is thus raised to about $8. Further effort by the humane society may easily raise the cost much higher. The medical schools and institutes will be forced to face the alternative of getting no dogs or maintaining a dog farm with its still greater and almost prohibitive costs. It will then be easy for the agents of the humane society to take the last step, and expose to the public the imaginary horrors of the dog farm, where "man's best friend" is raised only to be killed.

If this is the inevitable end to which the present policy is leading, it is surely time that the defenders of experimentation with animals should radically alter their policy. The cause can be saved only by changing from a defense composed of excuses, explanations and deprecation to a defense in which the primary feature will be a demand for laws positively favoring science.

The humane societies sponsoring antivivisectionism are as conscientious, as much imbued with the spirit of righteousness and as determined to win as the dry forces in the liquor question. The analogy to the prohibition issue goes even further. Many investigators who are now compelled to break the law, or to connive at breaking it, or to use underground methods of getting dogs, speak of their acts in the same shamefaced manner as do their friends who buy liquor from bootleggers. Sooner or later every investigator who pursues the bootleg policy in regard to dogs is almost certain to be caught. He is exposed by the agent of the humane society as buying from some disreputable character who makes a business of stealing dogs. Thus men of the highest character and motive have been subjected to an obloquy similar to that which attaches to a convicted liquor bootlegger.

Of course, experimenters with animals would all like to avoid this issue and to go on with their work in peace and quiet. But what is here described has already happened often and is happening each year more frequently. It is, therefore, something that all investigators in this field should expect sooner or later, unless they give up the use of dogs or unless the policy of defense is radically altered. They must get the law on their side instead of allowing themselves to be maneuvered into a position in which they really deserve, speaking from a strictly legal standpoint, exposure and disgrace. In the face of such exposure it will avail them little that their activities are really of the noblest and most humane character.

By introducing this bill in Congress this winter the antivivisectionists have opened a country-wide campaign. After success in the District of Columbia the fight is then to be carried into forty-eight states. The bill before Congress is therefore of crucial importance. It should not be met, as have similar bills in state legislatures in the past, merely by pious professions regarding all the good that science does. There should be introduced a bill requiring that all stray dogs taken up by any public agency or humane society in the District of Columbia shall be at the disposal of medical schools, research institutes, and government bureaus that have use for dogs, and this bill should be actively supported by the American Medical Association. Such a bill would be analogous to the anatomic materials acts of many states. Medical schools obtain human bodies for dissection under such laws. Before there were such laws there were cases in which grave robbers were hired. As bodies are now obtained legally, so must dogs be obtained legally or their use stopped. At the public hearing before the committee of Congress on the bill assigning stray dogs to scientific use, the presentation of the case for medicine should be in the hands of able lawyers, and they should be instructed to expose the opponents of such a bill before the public as false humanitarians.

A similar measure should be introduced into the legislature of New York State and thereafter in other states. It should direct and require that every dog warden, public pound or humane society shall on demand from a medical school or scientific institute supply such dogs as they have available. Probably in the first session, both at Washington and at Albany, such a physiologic materials law will fail of passage; but it

should then be reintroduced at each subsequent session. The official support of medical associations, national, state and city, and of the universities should be asked. The entire body of the supporters of science throughout the nation should be mobilized to carry through these measures first at Washington and then at Albany.

Thus only can the continuance of the use of dogs for experimental purposes be secured. It is a well demonstrated mistake to think that if experimenters with animals only keep still, the opponents of science will leave the work unhampered. The present defensive policy simply plays into their hands and will result in the near future in virtual termination of the use of that animal from which more than any other mammal present physiologic knowledge has been obtained, and without which many important lines of investigation will be practically closed.

By way of explanation for my standpoint in this letter, I may mention that when the United States entered the war in 1917, I was put in charge of certain war gas investigations, and carried them on at first in New Haven. My first step was to ask the governor of Connecticut to exert his authority to assign to me and my staff all stray dogs taken up in this state. Surely if it was logical and right for the state to supply dogs as victims of war gases, it is more logical and right for the state to supply them for use in the painless experiments of physiology for the discovery of methods to combat disease, suffering and death for all mankind.

YANDELL HENDERSON, PH.D.,
Yale University, New Haven, Conn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

STUCCO BOILS—STANNOXYL

To the Editor:—1. In the manufacture of wall board from gypsum, there arises many cases of what workers call "stucco boils," which appear largely on exposed surfaces of the body. Would working in an atmosphere of gypsum dust give rise to the prevalence of this condition? 2. Is there any basis to the claims made by the producers of a certain proprietary medicine, which I believe is called Stannoxyl, that giving of tin therapeutically proves of value in the prophylaxis and treatment of boils?

M.D., Clarence Center, N. Y.

ANSWER.—1. Details as to the process employed in making gypsum plaster or wall boards vary from plant to plant. Several sources of dermatoses are known to exist. In the absence of exact information as to trade practices in a given factory, a group of possible causes are here indicated.

Gypsum or calcium sulphate is not specifically irritating. Like most other dusts, gypsum is mechanically irritating. Settled dust on the forearms and other portions of the body, combined with perspiration or with gypsum plaster, tends to occlude the openings into the skin, and thus paves the way for a folliculitis, or "stucco boils." The process is not unlike the causation of "oil boils" or "machinists' furunculosis," in which the cutting oils of machine shops seal into the skin follicles the tiny metal particles and the grime common to machine shops.

Wall board materials give off a vegetable dust. While one side is smoothly finished, the other is at times coarsely finished in order that the gypsum may better adhere. This wall board dust is believed to be somewhat more irritating than ordinary vegetable dusts, owing to the chemicals to which paper pulp is subjected in processing.

In order to make wall boards impervious to the water of the wet gypsum plaster, water-proofing materials are commonly applied. Dipping into asphalt or coal tars is the best known procedure. This step may be accompanied by acute dermatoses and on rare occasions by skin cancers.

In a few patented specifications covering the making of gypsum wall boards, the use of dextrins for adhesive purposes is mentioned. Dextrins are intermediate stages between sugars and starches, and are obtained by the incomplete hydrolysis of starches. Since some sugar is present, "sugar boils," such as are found in sugar or dextrose manufacture, are a possibility.

In order that paint may subsequently be applied to plaster boards, it is necessary in some instances that the boards be sized. This is accomplished by coating the outside with a flour or starch paste. Long exposure may induce a low grade dermatitis.

Since "stucco boils" are known to plasterers and other tradesmen who are not exposed to some of the trades steps mentioned in this answer, the opinion is expressed that the first explanation cited above is the likely cause of the prevailing boils mentioned by our correspondent.

2. "Stannoxyl" has not been accepted for New and Nonofficial Remedies, nor has the Anglo-French Drug Company, which markets Stannoxyl in the United States, requested an examination of the product by the Council on Pharmacy and Chemistry.

The use of tin in the form of "Stannoxyl" has received some publicity, but the use of the preparation has not achieved an established place in the treatment of "boils."

Two notes on Stannoxyl appear in the Propaganda for Reform in Proprietary Medicines **2**:469.

NITRITES IN SEASICKNESS

To the Editor:—I have noticed in the literature during the past few months that the nitrites are a specific for seasickness. Will you please state the best form and how it is used? Omit name if published.

M.D., Oregon.

ANSWER.—Sodium nitrite and glyceryl trinitrate (nitroglycerin, which has the physiologic action of nitrites) are the drugs that have been used, but they have not been proved to be specific for seasickness. From 3 to 5 grains (0.2 to 0.3 Gm.) of sodium nitrite are given at two-hourly intervals for several doses, and may be used as a preventive or a curative. Pearcy and Hayden (THE JOURNAL, April 14) treated eight cases successfully; Elder and Starr (*Brit. M. J.*, October 20) used it as a preventive in five out of twelve cases with success, and as a curative in seventy-seven cases, with complete relief in twenty-nine cases and partial relief in five cases. Sellheim (*Brit. M. J.*, February 11) successfully used one drop of glyceryl trinitrate in 1 per cent solution as a curative in one case, and two drops of a 0.5 per cent solution as a preventive and curative in other cases.

CARNRICK PREPARATIONS

To the Editor:—I have been receiving a great deal of advertising literature from the G. M. Carnrick Company of Newark, N. J. I suspect that their claims are, for the most part, extravaganza and moonshine. However, I do know that some reputable physicians use these products. Can you tell me which, if any, of these products have value: Hormatone, Testacoids, Virilogen, etc. Kindly omit my name.

M.D., New York.

ANSWER.—A report of the Council on Pharmacy and Chemistry on Viriligen, "Viriligen, Glandular Comp. and Pineal Comp. Not Accepted for N. N. R.," was published in THE JOURNAL, Feb. 28, 1925, p. 695. A report on Hormotone, "Hormotone and Hormotone Without Post-Pituitary," was published in THE JOURNAL, Aug. 16, 1919, p. 549. An article "Ovacoids and Testacoids," published in the Propaganda Department of THE JOURNAL, Feb. 5, 1927, p. 422, discusses "Testacoids."

VITAMIN D, ERGOT AND CEREALS IN THE DIET

To the Editor:—Is vitamin D (ergosterol) present in any great amount in medicinal ergot or ergotin? Does therapeutic effect of ergot or ergotism depend in any part on vitamin D action? Does rye contain more vitamin D than wheat, corn and most other grains, and can superior vigor, greater tooth and bone formation of rye-using nations be ascribed to vitamin D effect from its presence in rye?

A. J. HOENES, M.D., Murray, Utah.

ANSWER.—Our correspondent exhibits some confusion with respect to the use of terms. Vitamin D is not to be identified directly with ergosterol; the latter is rather to be considered as the precursor of an antirachitic substance developed therefrom through the action of rays in the ultraviolet region of the spectrum. Hence ergosterol has been described, particularly on the European continent, as the "provitamin." Vitamin D, or its chemical equivalent, is a derivative of ergosterol.

Ergosterol—not vitamin D as such—is present in ergot oil, which is usually removed in the preparation of therapeutic products from ergot. It is unlikely that the therapeutic effects secured by the use of ergot derivatives are due to ergosterol. Certain specific alkaloids suffice to explain their action.

We are not aware of any studies that give adequate comparisons of the vitamin D content of the cereal grains. Comparisons of the latter with respect to their alleged effects on the development of the teeth have recently been published by

May Mellanby (*Physiol. Rev.* **8**:545 [Oct.] 1928). She believes that the most important specific influences affecting the structure of the teeth are the intake of vitamin D (or its equivalent in exposure of the skin to sunshine or other sources of ultraviolet radiation) and the amount and type of cereal eaten. Some American investigators, notably Steenbock of the University of Wisconsin and Cowgill of Yale University, have not observed notable specific differences between the common cereals. Hence the final conclusion remains *sub judice*.

It would be rash, we suspect, to attribute the alleged "superior vigor" of certain nations to small differences in their cereal intake. There are too many unevaluated factors involved to warrant such extreme generalizations on the basis of any established scientific evidence.

GLYCEROGELATIN SUPPOSITORY BASE

To the Editor:—Please state the proportions or amounts of the necessary ingredients to make a glycerogelatin suppository base which will melt at 98 F. Please omit name.

M.D., Florida.

ANSWER.—The following proportions yield a bougie mass, which, while it does not "melt" at body temperature, readily dissolves in the body fluids:

Gelatin	15 parts
Water	13 parts
Glycerin	18 parts

CHANGING WASSERMANN REACTION AND TREATMENT OF SYPHILIS

To the Editor:—A well nourished white man, aged 32, weighing 160 pounds (73 Kg.) and 5 feet 9 inches (175 cm.) in height, contracted syphilis in 1917 and had a 4 plus Wassermann reaction. He took mercury ointment rubs for one year and obtained a negative Wassermann reaction. He entered and was discharged from the army with a negative Wassermann reaction. He has since been married. He has a son normal in every way who is 3 years of age. The wife's Wassermann reaction is negative. One year ago this patient developed a copper-colored skin rash. The Wassermann reaction was 4 plus. Since that time he has had forty-four injections of 0.9 Gm. of neoarsphenamine, fifty-two injections of mercurosal, twenty-six injections of a water soluble bismuth preparation, and twelve injections of 3 Gm. of tryparsamide. The tonsils have been removed and the teeth roentgenographed. The patient's appetite and general health have improved. The spinal fluid reaction is negative, but the blood Wassermann reaction is still 4 plus. What advice can you give regarding future treatment and what is the outlook of obtaining a negative Wassermann reaction. Kindly omit name.

M.D., Illinois.

ANSWER.—This patient is, as far as can be ascertained, clinically free from syphilis. The only disturbing fact is a 4 plus Wassermann reaction, which remains in spite of vigorous treatment. Probably the best course to pursue with him is to treat him as a patient and not on the basis of the positive Wassermann reaction. His syphilis is 11 years old and in view of that fact and the vigorous treatment that he has had it is not probable that his Wassermann reaction can be rendered permanently negative. Certainly more harm than good may be done in excessive treatment to overcome the positive Wassermann reaction. The Wassermann reaction alone may be a fact of no importance. The main thing is that the man is clinically in fine shape. If he is anxious about the situation, the importance of his positive Wassermann reaction should not be overemphasized and efforts should be made to get the situation off his mind. He should be reasonably watched, gone over twice a year, and it may be useful to put him on a moderate course of mercury or mercury compounds and iodide twice a year, as a precaution.

ACTION OF ERGOTOLE AND EPINEPHRINE

To the Editor:—I gave a man 1 cc. of ergotole, hypodermically, from an ampule made by Sharpe and Dohme. Within five minutes the man was dead. The man had suffered most of the time for several months with asthma. Otherwise he was apparently in good health; there was no heart murmur. He had taken adrenalin every few hours during the night, but was fairly comfortable when he walked into my office. I told him of this treatment for asthma, and he came in and asked me to give it to him. His death seemed to be due to dyspnea, as his pulse beat for several seconds after his respiration ceased. Could this, or any other dose of medicine, have caused his death in so short a time? Could it have been due to any impurity of the drug? Since it was given in the same location in which he had recently had several doses of adrenalin, could it have suddenly released a large amount of adrenalin to the circulation? I have since read that after a dose of adrenalin has lost its effect it could be renewed by massaging the arm.

M.D., Florida.

ANSWER.—Persons with asthma are allergic, and also may have "altered reactions" toward a variety of medicinal agents. Such idiosyncrasy is a more probable explanation of the occurrence than reabsorption of epinephrine (adrenalin). The latter possibility cannot, however, be entirely dismissed from consideration, as the combination of ergotoxine and epinephrine has been found in animals to cause the so-called vasomotor reversal; namely, a fall in the blood pressure instead of the expected rise.

EFFECTS OF GASOLINE

To the Editor:—I have two problems concerning the odor, fumes or vapor of gasoline: 1. What are the harmful effects to a painter working in a small but well ventilated room, spraying paint that has been thinned with gasoline? 2. What are the possible ill effects to a housewife working around and cooking with a pressure gasoline stove of well known make? This stove gives off disagreeable odors and seems to cause headaches and smarting of the eyes.

PAUL H. MARTIN, M.D., Ligonier, Ind.

ANSWER.—1. Assuming that no other paint constituent contributed to the ill being of the painter, and assuming that the gasoline was in fact benzine and not benzene or solvent naphtha, the concentration of gasoline vapors regarded as likely to produce harm extends upward from 500 parts per million of air. In view of the "well ventilated room" mentioned in the query, the probability of injury under the circumstances specified is negligible.

It is not to be inferred that gasoline is a harmless work material. Painters applying coatings in which gasoline is a major solvent in rooms that are unventilated may quickly be affected. A dermatitis is a well established result of direct contact with this hydrocarbon; especially is this likely if gasoline saturates the gloves or other raiment. Respiratory tract inflammation and conjunctivitis are common concomitants to gasoline fume exposure. A toxic state popularly termed a "naphtha jag" is attributed to gasoline vapors in higher concentrations. This condition is encountered in those trades in which workmen are engaged in washing metal parts in gasoline in open containers and without adequate ventilation. In part to avoid this condition, some dry cleaning establishments endeavor to substitute other solvents for gasoline. Rarely gasoline inhalations produce a chronic mental state simulating the feeblemindedness that ordinarily exists from birth.

2. Odors in themselves do not produce any organic lesions. They may produce nausea and kindred states and thus indirectly become the source of harm. Given a gasoline stove free from leaks and faulty burners, the problem becomes one of gasoline combustion products and not gasoline fumes per se. These stove fumes include both carbon monoxide and dioxide but rarely in quantities regarded as dangerous. Carbon dioxide may at once be freed of blame. Headaches from carbon monoxide from this source are probable. Greater significance must be attached to the small traces of anthracene, naphthalene and pyridine. The smarting of the eyes is to be attributed to this group.

For permanent installations it is advantageous to procure venting for gasoline stove fumes.

ALKALINE PHOSPHATURIA — HAY-FEVER AND RHINITIS

To the Editor:—What food products are productive of alkaline phosphates in the urine? What drug therapy can be used to combat a phosphaturia that is actually causing dysuria? Is there anything specific in the examination of a hay-fever patient to differentiate this condition from an ordinary rhinitis? Please omit name.

M.D., New York.

ANSWER.—The alkaline phosphates arise from abundant use of fruits and vegetables; but whether the urine will be alkaline, acid or neutral will depend on the relative proportion of acid-producing foods—animal products and cereals—and alkaline-producing foods, fruits and vegetables.

In addition to prescribing a predominance of acid forming foods calcium carbonate in doses of from 1 to 2 Gm. three times a day has been advocated with the idea of lessening the elimination of phosphate in the urine by holding it in the bowel in the form of calcium phosphate.

The specific hypersensitiveness of the skin to certain pollen toxins differentiates hay-fever from other forms of rhinitis.

CAUTERIZATION TO PREVENT RABIES

To the Editor:—Please let me know whether a wound caused by a dog bite should be cauterized with concentrated $H.NO_3$ or fuming nitric acid which is designated in books on chemistry as nitrous acid—an unstable substance.

HERMAN COHEN, M.D., New York.

ANSWER.—Fuming nitric acid might be preferable: but even then it is not sufficiently deep in action to be depended on to prevent rabies.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 8-11, 1929. Sec., Miss Bessie Tucker, 519 Dexter Ave., Montgomery, Ala.

COLORADO: Denver, Jan. 8, 1929. Sec., Dr. Philip Work, 324 Metropolitan Bldg., Denver, Colo.

DELAWARE: Wilmington, Dec. 11, 1928. Sec., Dr. Harold L. Springer, 1013 Washington St., Wilmington, Del.

DISTRICT OF COLUMBIA: Washington, Jan. 8, 1929. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., Washington, D. C.

HAWAII: Honolulu, Jan. 14, 1929. Sec., Dr. James A. Morgan, Room 48, Young Bldg., Honolulu, Hawaii.

KENTUCKY: Louisville, Dec. 4-6. Sec., Dr. A. T. McCormack, 532 West Main St., Louisville, Ky.

LOUISIANA: New Orleans, Dec. 13-15. Sec., Dr. R. B. Harrison, 1507 Hibernia Bank Bldg., New Orleans, La.

MARYLAND: Baltimore, Dec. 11-14, 1928. Sec., Dr. Harry M. Fitzhugh, 1211 Cathedral St., Baltimore, Md.

MINNESOTA—Basic Science: Minneapolis, Jan. 2, 1929. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn.

MINNESOTA: Minneapolis, Jan. 15-17, 1929. Sec., Dr. A. E. Comstock, 524 Lowry Bldg. St. Paul, Minn.

NORTH DAKOTA: Grand Forks, Jan. 1, 1929. Sec., Dr. G. M. Williamson, Grand Forks, N. D.

OHIO: Columbus, Dec. 5-7. Sec., Dr. H. M. Platter, Ohio State Savings Bldg., Third and Gay Sts., Columbus, Ohio.

OREGON: Portland, Jan. 2-4, 1929. Sec., Dr. Joseph F. Wood, 510 Selling Bldg., Portland, Ore.

RHODE ISLAND: Providence, Jan. 3-4, 1929. Sec., Dr. B. U. Richards, State House, Providence, R. I.

SOUTH DAKOTA: Pierre, Jan. 15, 1929. Director, Dr. H. R. Kenaston, Bonesteel, S. D.

VIRGINIA: Richmond, Dec. 4-7. Sec., Dr. J. W. Preston, State Bd. of Med. Examiners, 720 Shenandoah Life Bldg., Roanoke, Va.

WISCONSIN: Madison, Jan. 8-10, 1929. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse, Wis.

WISCONSIN—Basic Science: Milwaukee, Dec. 15, 1928. Sec., Prof. R. N. Bauer, 3410 Wisconsin Ave., Milwaukee, Wis.

Nebraska June Examination

Mr. Lincoln Frost, secretary of the Nebraska Department of Public Welfare, reports the written examination held at Omaha, June 21-23, 1928. The examination covered 10 subjects. An average of 60 per cent was required to pass. There were 54 candidates examined and all of them passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Washington University School of Medicine		(1927)	81.6
Creighton University School of Medicine	77.5, 78.7, 79.8, 81, 81.2, 81.4, 81.9, 82.3, 82.4, 82.5, 82.9, 83.1, 83.1, 83.5, 83.9, 84, 84.2, 84.8, 84.9, 84.9, 85, 85.5, 85.8, 86.8, 86.9, 87.7, 87.9, 88.1, 88.2, 92.5	(1927) (1928)	75.1, 77.4,
University of Nebraska Coll. of Medicine	76.4, 78.3, 79.7, 80.7, 81.8, 81.8, 82.3, 82.8, 82.8, 82.9, 83, 83.3, 84.8, 85, 87.9, 88.6, 88.7, 88.8	(1926) (1927) (1928)	88.7, 83.2,

Maine July Examination

Dr. Adam J. Leighton, secretary of the Maine State Board of Medical Examiners, reports the written examination held at Augusta, July 2-3, 1928. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Of the 17 candidates examined, 16 passed and 1 failed. Four physicians were licensed through reciprocity and 5 by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1928)	89
Boston University School of Medicine		(1928) 81, 82, 84, 85, 85,	85
Harvard Medical School		(1923) 88, (1924) 86, (1927)	84
Tufts College Medical School		(1928)	84, 86
Queen's University Faculty of Medicine		(1920)	82
McGill University Faculty of Medicine		(1925) 84, (1927)	87
University of Montreal Faculty of Medicine		(1921)	77
	FAILED		
Royal University of Naples, Italy		(1923)*	68

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia Medical Department		(1913)	Virginia
Cornell University Medical College		(1903)	Nevada
University of Vermont College of Medicine		(1925), (1927)	Vermont

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Boston University School of Medicine		(1924)	N. B. M. Ex.
Harvard Medical School		(1924), (1925)	N. B. M. Ex.
Columbia University College of Phys. and Surgs.		(1924) (2)	N. B. M. Ex.

* Verification of graduation in process.

Minnesota June Examination

Dr. A. E. Comstock, secretary of the Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held at Minneapolis, June 19-21, 1928. The examination covered 11 subjects and included 60 questions. An average of 75 per cent was required to pass. There were 70 candidates examined and all of them passed. Six physicians were licensed by reciprocity with other states and one by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1928)	88, 88
University of Illinois College of Medicine		(1923)	88
University of Louisville School of Medicine		(1926)	85
Tulane University of Louisiana School of Medicine		(1925)	90
Boston University School of Medicine		(1918)	89
University of Minnesota Medical School	(1927)* 87, 89, 90, (1927)† 91, (1928)‡ 84, 84, 86, 87, 87, 87, 87, 87, 88, 88, 88, 88, 89, 89, 89, 89, 89, 89, 90, 90, 90, 91, 91, 91, 91, 91, 92, 92, 93, (1928) 87, 88, 88, 89, 89, 89, 89, 89, 90, 90, 91, 92, 92, 94	(1924) 88, (1927)	91,
St. Louis University School of Medicine		(1927)	88, 88
Washington University School of Medicine		(1927)	91
Creighton University School of Medicine		(1927)	92
Columbia University College of Phys. and Surgs.		(1925)	89
University of Oregon Medical School		(1926)	88
University of Pennsylvania School of Med.		(1925) 90, (1926)	91
Medical College of Virginia		(1926)	86
Marquette University School of Medicine		(1928) 85,	87, 93
University of Manitoba Faculty of Medicine		(1928)	89, 89

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1925)	California
Rush Medical College		(1919) Illinois, (1922)	S. Dakota
University of Illinois College of Medicine		(1922)	Illinois
St. Louis University School of Medicine		(1926)	Missouri
Vanderbilt University School of Medicine		(1924)	Tennessee

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
University of Pittsburgh School of Medicine		(1926)	N. B. M. Ex.

* Not a graduate until December, 1928.

† Should have been a graduate in June, 1928; M.D. degree not yet granted.

‡ Not a graduate until 1929, when year of internship is completed.

Arkansas May Examination

Dr. J. W. Walker, secretary of the Arkansas State Board of Medical Examiners, reports the written examination held at Little Rock, May 9-10, 1928. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. There were 33 candidates examined and all of them passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Physicians and Surgeons, Little Rock		(1910)	83.0
University of Arkansas School of Medicine	(1928) 78.2, 79.3, 80.6, 81.3, 81.4, 82, 82.2, 82.7, 83.5, 83.5, 83.5, 83.7, 83.7, 84.2, 84.7, 84.7, 85, 85, 85.2, 85.2, 86.3, 86.4, 86.8, 87, 87.2, 87.8, 88.4	(1927)	87.3,
University of Kansas School of Medicine		(1927)	78.0
Louisville and Hospital Medical College		(1911)	87.3
Memphis Hospital Medical College		(1893)	83.5
University of Tennessee College of Medicine		(1927)	81.7

Connecticut July Examination

Dr. Robert L. Rowley, secretary of the Connecticut State Board of Medical Examiners, reports the written examination held at Hartford, July 10-11, 1928. The examination covered seven subjects and included 70 questions. An average of 75 per cent was required to pass. Of the 24 candidates examined, 22 passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine	(1928) 78.7, 80.9, 81.9	(1926) 86.2, (1927)	81.9, 82.9,
Georgetown University School of Medicine		(1927)	83.3
Indiana University School of Medicine		(1928)	79.9
Boston University School of Medicine		(1926) 79.5, (1927)	75.7
Harvard University Medical School		(1926) 86.7, (1927)	85.3, 89.2
Tufts College Medical School		(1926) 79.6, (1928)	79.8, 84.2
Cornell University Medical College		(1926)	81.2
Long Island College Hospital		(1928)	80.9
Jefferson Medical College of Philadelphia		(1928) 80.5,	81.3
University of Vermont College of Medicine		(1927)	78.2
Medical College of Virginia		(1928)	78.9
	FAILED		
College of Physicians and Surgeons, Baltimore		(1914)	63.7
Tufts College Medical School		(1927)	74.4

Book Notices

CHEMOTHERAPEUTIC RESEARCHES ON CANCER WITH ESPECIAL REFERENCE TO THE LEAD AND SULPHUR GROUPS. By A. T. Todd, M.B., M.R.C.P., Honorary Assistant Physician, Bristol Royal Infirmary. Paper. Price, 2/6. Pp. 127. Bristol: J. W. Arrowsmith, Ltd., 1928.

"This publication is an interim report only, as further work is in progress. . . . The committee wish it to be clearly understood that no profit of any description from the sale of the preparation or this publication will accrue directly or indirectly to the British Royal Infirmary or any one connected with it or this research in any degree." These quotations are from the preface, signed by the Committee for Bristol University and the British Royal Infirmary, Bristol, England. The report consists of a lecture in March, 1927, on the action of a lead selenium colloid on cancer by Dr. Todd, a much more extended account on the same subject in March, 1928, and several short special articles on allied technical subjects. There seems to be no question that the work is honest, well controlled and fairly judged. It is important to have such a report from students independent of the Blair Bell organization. Dr. Todd's report includes a short theoretical discussion, an account of animal experiments, results in forty-five patients, the dosage and method of D.S, a note on toxic symptoms, changes in the blood during treatment, and studies of the effect of the preparation on enzymes. A summary of the results in man is as follows: Relief of pain was marked in eight cases, less marked in nine, and absent in sixteen. Regression of the growth was marked in eight (not necessarily the same patients as those mentioned before), occurred in sixteen, and was not appreciable in sixteen. One of the typical successful cases was that of Mrs. J., aged 65, who had a large fungating carcinoma of the breast which had infiltrated the pectoral muscle and was firmly adherent to the ribs; there were axillary glands about the size of cherries. The patient did not appear to have much reaction but complained a great deal. The hemoglobin never dropped below 75 per cent. She received 0.38 Gm. of lead in four doses. Treatment started Jan. 1, 1927, and ended Feb. 26, 1927. The growth became smaller and freely movable; the incision of the biopsy wound tended to heal. It was considered that the rapidly growing outer part had regressed and left a nucleus of scirrhus. In view of the patient's age it was decided to amputate the breast but not to clear the axilla. Operation was uneventful. A mass of scirrhous carcinoma about the size of a walnut remains; the pectoral muscle underlying it shows strands of fat and fibrous tissue. She went home in good condition. When she was seen in June, 1927, the axillary glands were no longer palpable; her health was good, in view of her age. She would not have more treatment. When she was seen again, in November, 1927, there was no evidence of carcinoma but there were some small keloid masses in scar. She died in February, 1928, of uncertain cause. There are eight such reports, indicating definite potency of the lead injections in the series of forty-five cases reported. In these patients, cancer had reached an inoperable stage. No accessory treatment by x-rays or radium was given. Liver feeding and calcium chloride were used as protective medication. This result warrants the consideration and the active study of those willing to attack the problem of the treatment of cancer.

EPILEPSY. By William G. Lennox, Assistant in Medicine, Harvard Medical School, and Stanley Cobb, Bullard Professor of Neuropathology, Harvard Medical School. Medicine Monographs, Volume XIV. Cloth. Price, $3.50. Pp. 197, with 14 illustrations. Baltimore: Williams & Wilkins Company, 1928.

This is a valuable and fascinating study of the factors involved in convulsions in general. The authors, who have done important investigative work in this field, also prove themselves equipped with a thorough grasp of old and recent research work in physiology, chemistry and pathology which has a bearing on this problem. While cautious in drawing conclusions and not at all ready to offer a solution to the riddle of epilepsy, they lay greater emphasis on chemical factors, such as alkalosis and "oxygen lack," and on disordered sympathetic nerve function and arterial spasm, than on the meager and inconstant information given by microscopic examination. Their reasoning leads them to discard the distinction between "idiopathic" and "symptomatic" epilepsy, as this implies a knowledge which we do not possess. However, they sound this hopeful note: "The encouraging feature is that, although the exact mechanism of seizures is unknown, much can be done to prevent and, in the early stages, to cure them. It is the duty of the physician to search out the various contributing or precipitating factors which, in the individual patient, may make for seizures. Correction of these abnormalities may effect sympathetic cure." The book can be highly recommended to the general medical reader as one that deals with a difficult subject in a clear, orderly and interesting manner.

CLINICAL ELECTROCARDIOGRAPHY. By Sir Thomas Lewis, M.D., F.R.S., D.Sc., Honorary Consulting Physician to the Ministry of Pensions. Fourth Edition. Cloth. Price, 8/6 net. Pp. 128, with 107 illustrations. London: Shaw & Sons, Ltd., 1928.

The first edition of this book was published in 1913. It had almost no rivals. It was at once accepted as authoritative, as the best elementary guide to the subject, at least in the English language. Today there are worthy volumes on electrocardiography by others. Lewis's book may, however, still be favorably compared with them. This edition differs but little from the first. One notes a few changes here and there in the phrasing of a sentence or the arrangement of a paragraph, the insertion of a new illustration or the omission of an old one. But recent ideas are not neglected, as the circus movement theory or the curves indicative of coronary obstruction. In all essentials, however, it is the same book even to the repetition of the erroneous statement that in a certain illustration (figure 26 in the first edition, 25 in the fourth) the auricular contractions are found on measurement to be equidistant. In reality they are not so depicted. The author's ability to draw on his great fund of knowledge concerning the heart and to present only the essentials, and to do this with remarkable clarity, makes his book delightful reading and a reliable and helpful guide. In the preface he says that in the companion book, Clinical Disorders of the Heart Beat, he has "attempted to collect the simple bedside signs of disordered heart action and to narrate their influence upon prognosis and treatment in a manner palatable to pure clinicians." The time has come when he whom he terms the pure clinician—one would like to have his definition of "pure clinician"—would find the elements of electrocardiography not only palatable but even digestible. Could not the accomplished author unbend a little and condescend to unite in one volume the substance of the two? Few seem so qualified as he to develop a thoroughly scientific and practical book of this character.

A TEXT-BOOK OF FRACTURES AND DISLOCATIONS COVERING THEIR PATHOLOGY, DIAGNOSIS AND TREATMENT. By Kellogg Speed, S.B., M.D., F.A.C.S., Associate Professor of Clinical Surgery, Rush Medical College of the University of Chicago. Second edition. Cloth. Price, $11 net. Pp. 952, with 987 illustrations. Philadelphia: Lea & Febiger, 1928.

This is essentially a new work; the book has been completely rewritten and many original illustrations have been added. The first chapter covers the general treatment of fractures, including immediate treatment and investigation of the comparative value of operative and nonoperative treatment, and points to emphasize. There is a valuable section on what to look for in a roentgenogram of a long bone taken after injury. Chapter II deals with the operative treatment of fractures in general. The author takes up in a practical manner the relative value of operative and nonoperative treatment of closed fractures; the question of débridement in open fractures; what to do as "first aid" for open fractures; when to use a constrictor and its dangers; what not to do for an open fracture; the question of shock and its treatment; factors governing attempts to save a limb; indications for primary amputation; misguided attempts at limb saving; what to do at the hospital, including minor operative procedures and major operative procedures used to correct fractures, with details of the preparation for operation and after-care. Chapter III considers in detail the entire subject of dislocations, including the classification, etiology, nomenclature, pathology, symptoms, general treatment and after-treatment. The remaining chapters of the volume deal with special fractures and special dislocations, discussing them regionally, beginning at the head. After the fractures of each bone have been discussed, dislocations are thoroughly described. The author's operation for recurrent shoulder dislocation is given in detail and well illustrated. There is a voluminous

chapter on fractures of the femur, which includes a description of reconstruction operations on the head and neck of the femur, full details of skin and skeletal traction, and the construction of balkan frames. The book is copiously illustrated with numerous photographs showing the technic applied on actual patients, roentgenograms, and many illustrations prepared by means of tracings from original roentgenograms transferred to bristol board and inked, in accordance with the practice established in the first edition. The preliminary chapters of the first edition on bone, pathology of fracture, and symptoms, signs and diagnosis of fracture, together with the references in the literature, have been omitted, and the points covered by them are given in connection with each bone as it is discussed in the text. Many paragraphs headings are printed in boldface type to make it easy to find rapidly the information desired. Only basic improvements in fracture care have been inserted, and the author has not attempted to include much that has been written which he doubtless does not consider worthy of inclusion either as being not sufficiently tried or as being merely fads. The book may be criticized for this very reason because one is unable to find in it discussion of many of the new procedures. There are few references to the literature and no bibliography; this also detracts from the volume. The book represents the writer's own practice. His experience has been steadily enlarged since the first edition appeared by his active surgical contact during the war and by the care of a large fracture ward at the Cook County Hospital in Chicago. As a member of the Central Committee on Fractures of the American College of Surgeons and the Cooperative Committee on Fractures of the American Medical Association, he is peculiarly conversant with the standardization of the diagnosis and treatment of fractures which has been attempted in this country during the past few years, and his textbook can be highly recommended and safely followed as a valuable guide in this important field. The work contains an enormous amount of valuable practical information presented in a clear, concise manner, and all the procedures advised are the latest.

Klinik und Therapie der Blutkrankheiten. Von Prof. Dr. N. Jagić, Professor für innere Medizin an der Universität in Wien, und Dr. G. Spengler, Assistant der medizinischen Abteilung des Sophienspitales in Wien. Paper. Price, 20 marks. Pp. 311, with 14 illustrations. Berlin: Urban & Schwarzenberg, 1928.

As its title implies and as the preface expressly states, this book is intended to be clinical. To this end little is said of etiology or pathogenesis; there is scarcely a paragraph concerning pathologic anatomy; theoretical considerations are but briefly touched on. Clinical features, however, as well as diagnosis and treatment, are stressed. Much emphasis is laid on the importance of the study of stained specimens of blood, and a few simple directions are given as to laboratory technic. The chemistry of the blood and its bacteriology are considered in merest outline. In general, the clinical features of blood diseases are satisfactorily discussed. The chapters on the anemias seem to be better than those on the hyperplasias of the myeloid and lymphatic tissues, pseudoleukemia, the granulomatoses and splenomegaly. Perhaps this is due not so much to shortcomings on the part of the authors as to the fact that knowledge concerning these subjects is less accurate, and the pictures drawn must therefore be somewhat blurred in outline. The description of the morphology of normal and pathologic blood is to be commended. Helpful, well colored plates illustrate the various types of corpuscles. Naturally, in such a book many small items are run across that seem to deserve criticism. There is much needless, even tiresome, repetition all through the volume. It could with profit be cut down by a third. There might be more reference to literature other than German. Osler's name might be cited in connection with polycythemia. What the authors mean by pernicious anemia would be more understandable if they did not always call it Biermer's pernicious anemia. The spinal cord features of pernicious anemia could be more fully and accurately discussed. The remission in this anemia is not maximally two years; it may be more. To discuss venesection, gastric lavage and splenectomy in the treatment is to consider measures of questionable value that are now generally discarded and of only historical interest. Splenectomy in some forms of splenomegaly might be advocated more warmly. There is no mention of reticulocytes, nor are the peculiar cells seen in sickle-cell anemia described. In fact, no reference is made to this condition. The justification for the endorsement of proprietary remedies is questionable; within six pages, three are mentioned. Altogether, the book is valuable to the practitioner who desires a safe and conservative guide to the clinical features of diseases of the blood and help in his study of stained blood specimens as a means of diagnosis. One who desires a volume treating in a comprehensive manner the subject of diseases of the blood, or one who desires a manual giving the details of laboratory technic of blood examinations, will not care for it.

Lobar Pneumonia. A Roentgenological Study. A Correlation of Roentgen-Ray Findings with Clinical and Pathological Manifestations. By L. R. Sante, M.D., F.A.C.R., F.A.C.P., Associate Professor of Radiology, St. Louis University Medical School. With a foreword by James T. Case, M.D., F.A.C.S. Cloth. Price, $3 net. Pp. 137, with 43 illustrations. New York: Paul B. Hoeber, Inc., 1928.

Sante has made a serial roentgenographic study of 1,188 cases of lobar pneumonia as observed in the city hospitals and the St. Mary's Hospital of St. Louis. In each patient he has made a daily roentgenographic chest plate during the entire course of the illness. He makes it clear that in the adult the consolidation of lobar pneumonia begins in the hilum of the lung and spreads to the periphery, while in the child the process begins in the periphery of the lung. One gathers that the roentgenographic study of the pneumonic process is a very accurate method with which to follow the various stages of its pathology and extremely valuable for the early diagnosis of pneumonia and especially the beginning pulmonary complications. The book is concisely written and plentifully illustrated with reproductions of the original roentgen plates. The work should prove of great interest and value not only to the roentgenologist but especially to the practicing clinician.

Practical Biochemistry for Students. By E. W. H. Cruickshank, M.D., D.Sc., Ph.D., Professor of Physiology, Prince of Wales Medical College, Patna. Cloth. Price, 12/6d net. Pp. 275, with 21 illustrations. London: Butterworth & Company, 1928.

This practical guide represents the results of an earnest attempt to raise the standard of medical education in India. From that point of view it certainly deserves commendation. It is a practical guide giving few critical statements as to the true value of the various tests and methods described. To a chemist, the order of presentation of some of the material appears illogical. Thus, proteins are taken up first, with the amino-acids treated last, carbohydrates are described next with monosaccharides first, followed by a brief discussion of the lipins. Considerable space is devoted to quantitative analysis of blood and urine, and although some of the old and discarded methods are included, the student nevertheless is informed as to some of the more modern procedures. In the final chapter the mechanism of the regulation of the neutrality of blood is treated in a simple but modern way. A complete index is included.

Essentials of Prescription Writing. By Cary Eggleston, M.D., Assistant Professor of Clinical Medicine, Cornell University Medical College. Fourth edition. Cloth. Price, $1.50 net. Pp. 153. Philadelphia: W. B. Saunders Company, 1928.

The preparation of this edition has given the author opportunity for the incorporation of two changes for which the time did not appear earlier to have been ripe. The first of these new features comprises the emphasis that is now properly laid on the use of the metric system in the writing of prescriptions. The second change lies in the encouragement of the modern American physician to employ the English language in his writing of prescriptions, thereby increasing their grammatical accuracy and diminishing materially his own labors. These changes make the book even more desirable than it was before to serve as a textbook on the subject of prescription writing.

La citarchitettonica della corteccia cerebrale umana. Por Costantino Economo, Professore die Neurologia e Psichiatria nell'Università di Vienna. Paper. Price, 30 lire. Pp. 192, with 61 illustrations. Bologna: L. Cappelli, 1928.

This is a faithful Italian translation of Economo's ten lectures on the finer anatomy of the cerebral cortex. A review of the original German edition was published in The Journal, Oct. 22, 1927. While the technical part of the edition, such as the paper, printing and pictures, is not inferior to the German, the price is almost three times lower.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

PRÈCIS DE PATHOLOGIE CHIRURGICALE. Par MM. Bégouin, F. Papin, et al. Tome VI: Fractures et luxations. Affections acquises et congénitales des membres. Par E. Jeanbrau, professeur à la Faculté de médecine de Montpellier, L. Tixier, professeur à la Faculté de médecine de Lyon, M. Patel, professeur à la Faculté de médecine de Lyon, R. Proust, professeur agr. à la Faculté de médecine de Paris, et R. Soupault. Fifth edition. Cloth. Price, 55 francs. Pp. 922, with 396 illustrations. Paris: Masson & Cie, 1928.

Fifth edition of a French system of surgery, as badly printed as usual on the usual poor quality of paper.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS. By Hugh Alister McGuigan, Ph.D., M.D., Professor of Pharmacology and Therapeutics, University of Illinois College of Medicine. Cloth. Price, $6 net. Pp. 660, with 43 illustrations. Philadelphia: W. B. Saunders Company, 1928.

A new contribution to the textbooks of pharmacology—extended review later.

NERVOUS AND MENTAL DISEASES FOR NURSES. By Irving J. Sands, M.D., Associate in Neurology, Columbia University. Cloth. Price, $1.75 net. Pp. 239, with 17 illustrations. Philadelphia: W. B. Saunders Company, 1928.

Excellent lectures for well educated nurses who may wish to specialize in the nursing of psychiatric patients.

PROBLEMS IN SURGERY. University of Washington Graduate Medical Lectures, 1927. By George W. Crile, M.D. Edited by Amy F. Rowland. Cloth. Price, $4 net. Pp. 171, with 49 illustrations. Philadelphia: W. B. Saunders Company, 1928.

Collected essays of America's philosophical surgeon.

ABHANDLUNGEN AUS DEM GESAMTGEBIETE DER HYGIENE. Herausgegeben von Dr. R. Grassberger, o. ö. Professor der Hygiene in Wien. Heft 2. 1: Über die Grundlagen der Beurteilung von Milchverfälschungen. (Nach einem am 13. Jänner 1927 in der Österr. Kriminalistischen Vereinigung gehaltenen Vortrage.) Von Ernst Krombholz. II: Über die Schwierigkeiten bei der gerichtlichen Verfolgung von Lebensmittelverfälschungen und insbesondere von Milchverfälschungen. (Nach einem im Mai 1927 in der Österr. Kriminalistischen Vereinigung gehaltenen Vortrage.) Von Staatsanwalt Wladimir Fikéis. Paper. Price, 6 marks. Pp. 87. Leipzig: Franz Deuticke, 1928.

PRÉCIS DE PATHOLOGIE CHIRURGICALE. Par MM. Bégouin et F. Papin, et al. Tome V: Appareil génital de l'homme. Pathologie urinaire. Gynécologie. Par E. Jeanbrau, professeur à la Faculté de médecine de Montpellier, P. Bégouin, professeur à la Faculté de médecine de Bordeaux, et F. Papin, professeur agrégé à la Faculte de médecine de Bordeaux. Fifth edition. Cloth. Price, 55 francs. Pp. 1027, with 302 illustrations. Paris: Masson & Cie, 1928.

PRÈCIS DE PATHOLOGIE CHIRURGICALE. Par MM. Bégouin et F. Papin et al. Tome IV: Pathologie de l'abdomen. Par Pierre Duval, professeur à la Faculté de Paris, J. Gatellier, chirurgien des Hôpitaux de Paris, A. Gosset, professeur à la Faculté de Paris, et D. Petit-Dutaillis, chirurgien des Hôpitaux de Paris. Fifth edition. Cloth. Price, 55 francs. Pp. 918, with 355 illustrations. Paris: Masson & Cie, 1928.

UNIVERSAL KNOWLEDGE. A Dictionary and Encyclopedia of Arts and Sciences, History and Biography, Law, Literature, Religions, Nations, Races, Customs and Institutions. Edited by Edward A. Pace, Ph.D., D.D., and Others. Volume II. Cloth. Price, $6.25 per volume; $75 per set of twelve volumes. Pp. 1778, with illustrations. New York: Universal Knowledge Foundation, Inc., 1928.

MÉTABOLISME CELLULAIRE ET MÉTABOLISME DES TUMEURS. Travaux du Kaiser Wilhelm Institut für Biologie (Berlin Dahlem). Tome I et Tome II. Publiés par Otto Warburg. Tradlits par E. Aubel et L. Genevois. Paper. Price, 30 francs. Pp. 233, with 20 illustrations and pp. 217, with 25 illustrations. Paris: Félix Alcan, 1928.

FUNDAMENTALS OF CHEMISTRY. A Text-Book for Nurses and Other Students of Applied Chemistry. By L. Jean Bogert, Ph.D., Instructor in the Department of Medicine, University of Chicago. Second edition. Cloth. Price, $2.75 net. Pp. 345, with 19 illustrations. Philadelphia: W. B. Saunders Company, 1928.

DENTAL JURISPRUDENCE. An Epitome of the Law of Dentistry and Dental Surgery. By Elmer D. Brothers, B.S., LL.B., Professor of Medical and Dental Jurisprudence in the University of Illinois. Second edition. Cloth. Price, $2.25. Pp. 246. St. Louis: C. V. Mosby Company, 1928.

POR LA CREACION DEL SINDICATO MEDICO EN EL PERU. Por Dr. C. E. Paz Soldán, correspondiente de la Asociacion Professional Internacional de los Médicos en el Perú. Paper. Pp. 77. Lima: Minerva, 1928.

REPORT OF THE ROYAL COMMISSION OF INQUIRY INTO FATALITIES AT BUNDABERG, TOGETHER WITH APPENDICES. Paper. Pp. 125, with 3 illustrations. Canberra, Australia: H. J. Green, 1928.

STATE OF ILLINOIS, DEPARTMENT OF PUBLIC WELFARE. Sixth report of Statistician year ending June 30, 1927. By E. R. Amick, Statistician. Cloth. Pp. 252. Springfield, 1928.

SPECULATION ON LIFE AND RELIGION. By C. L. Kasson. Paper. Pp. 47. Mattapan, Mass., 1928.

Medicolegal

Weight of Testimony of Professional Expert Witnesses

(Murphy v. Pennsylvania R. Co. (Pa.), 140 A. 867)

The plaintiff, a passenger, was injured in a collision between two of the defendant's trains. No defense was offered, the only contest being as to the amount of compensation to be paid. A verdict was rendered in favor of the plaintiff for $35,000 and the defendant appealed. Commenting on the testimony of an expert witness, the supreme court of Pennsylvania said:

> The professional expert, whose testimony we relate above, frequently appeared in court as a witness in personal injury cases, and the inference from his evidence is that he made the giving of testimony in such actions a business. One of the evils in the trial of personal injury cases is padding the claim with evidence of the professional medical expert. When considering a motion for a new trial, based on an excessive verdict, ordinarily but little weight should be given to such testimony.

The amount of the verdict, $35,000, placed at interest, would give the plaintiff more than double any yearly earnings made prior to the accident, and would leave the principal untouched. After the trial it was discovered that prior to the present accident she had prosecuted two persons for assault and battery, charging one with "beating" her head against a post, causing unconsciousness for three hours, and the other with striking her with force and violence on the head. The trial court refused to consider affidavits as to these prior prosecutions as of any weight, or to order a reduction of the amount of the verdict or, as an alternative, a new trial. This was manifest error. If the effect of the present blow on the head continued as long as the plaintiff suggests, then there is no reason why the prior injury might not have so continued and be largely responsible for the condition of which the expert testified. The judgment of the court below was reversed and the case remanded for a new trial.

Testimony as to Sanity of Accused from Voluntary Examination Admissible

(Wehenkel v. State (Neb.), 218 N. W. 137)

The defendant was found guilty of murder. On appeal to the supreme court of Nebraska, the accused assigned as error the admission by the trial court of the testimony of Dr. C., superintendent of the state hospital for the insane, who examined the accused and at the trial, on the basis of that examination, testified that the defendant was sane. The testimony was objected to because the examination was not made under an order of the court, because the counsel of the accused was not present, and because the examination was at the instance of the prosecution alone. Therefore, it was contended, it violated the provision of the state constitution that: "No person shall be compelled, in any criminal case, to give evidence against himself." The testimony showed that the doctor informed the accused that he had been requested by the county attorney to make the examination, that he told the accused he did not have to answer any question, and that the accused submitted without objection to the physical and mental tests. The supreme court sustained the admission of this testimony by the trial court. It held that where an order of court has first been obtained for an examination of the defendant by physicians, their testimony as to what they discover and their opinion as to the prisoner's sanity is admissible and does not contravene the constitutional provision; also that such evidence is admissible when the defendant submits to an examination without any threats, duress,

deception or objection. From this the court deduced the rule that the testimony of a physician as to the sanity of the accused, based on an examination of him made without an order of court and without the knowledge or consent of his attorneys, but without objection by the defendant at the time of examination, is not subject to the objection that the defendant was compelled to give evidence against himself.

Crime Not Excused by Narcotic Addiction

(Milburn v. Commonwealth (Ky.), 3 S. W. (2d) 204)

Milburn's defense to the charge of murder was that of insanity. Witnesses testified that when he shot the deceased, and immediately before doing so, his actions were such as to indicate that he was either drunk or under the influence of drugs and that his mind was unsound as a result. A physician testified that he had treated Milburn for incipient tuberculosis, a blood disease and taking drugs; that he continued to improve up to the time the physician last saw him, three days before the fatal shooting; and that at that time Milburn was normal mentally and apparently had not recently taken drugs. Milburn was convicted of murder and appealed. Exception was taken to an instruction given by the trial judge to the jury, that although the jury might believe that the defendant had not sufficient reason to know right from wrong or, because of some impulse which he could not control, was without power to govern his actions, yet if the jury should believe that such lack of reason or control arose from the voluntary use of drugs and not from unsoundness of mind, it should not acquit the defendant on the grounds of insanity. The court of appeals pointed out that it had approved substantially the same instruction in *Perciful* v. *Commonwealth*, 212 Ky. 673, 279 S. W. 1062, wherein the trial court had said:

> Voluntary drunkenness or the voluntary use of drugs is not an excuse for crime, but the facts introduced in the evidence, if any, on the ground of defendant's being drunk or under the influence of drugs at the time the offense was committed and of his mental condition by reason thereof, though voluntary, should be considered by the jury on the question of his motive and in determining the question as to whether he was acting maliciously or without malice and in sudden heat and passion.

Drunkenness may be a circumstance showing the absence of malice, but it should not be singled out from the other proof, and the jury should not be instructed that it mitigates the offense. The same rule as to criminal responsibility should apply to a person under the influence of a drug taken voluntarily, and not as a medicine, as applies to a person drunk from the voluntary use of intoxicating liquor. In the present case, the appellant was not in a position to complain, since an instruction had been given authorizing the jury to consider the mental condition of the accused resulting from the voluntary use of intoxicating liquor or drugs in determining whether he was acting with malice. This instruction should not have been given; but, instead of prejudicing the appellant in any substantial right, it afforded additional grounds for mitigating the punishment and was favorable to him and prejudicial to the commonwealth. The judgment of the court below was affirmed.

Death Not Caused by Monoxide Gas

(Zielsdorf v. Grotsky (Wis.), 218 N. W. 186)

The plaintiff's husband rented a cottage from the defendant. Later the defendant installed a gas water heater in the bathroom. On top of the heater was an opening to which a pipe could be attached to conduct the gases outside, but no pipe was ever added. The deceased was subsequently found in the partly filled bath tub, with one arm on the edge, and the other under the water, his head inclined backward, and the tongue partly out from the mouth. He died before the arrival of a physician. After judgment for the plaintiff, the defendant appealed. A chemist testified that carbon monoxide gas may be created by the burning of illuminating gas such as was furnished in that city, which contained from 6 to 10 per cent of carbon monoxide. The attending physician, who had had no experience with deaths from poison gases, testified that from the history given him of the burning gas heater, he believed that the cause of death was lack of oxygen, "which was equivalent to the presence of carbon monoxide"; that except from what he was told about the gas heater he could not have told the cause of death by superficial examination; that no chemical test of the blood was made, and if a test had been made the presence of carbon monoxide, if any, would have been disclosed; that except from his knowledge of the gas heater it would have been more reasonable to believe that death was from heart failure than from any other cause; that the head thrown back and tongue protruding indicated death from gas poisoning, though not indicative of carbon monoxide. A fireman who attempted to apply artificial respiration to the deceased testified that the tongue was withdrawn from the mouth by him to prevent it falling back into the throat. After the entry of judgment and on motion for a new trial, an affidavit was presented showing the results of tests made by a graduate of the state university with the same gas heater in the same bathroom. The room contained 440 cubic feet and had a door leading into a hallway, and one outside window. From his tests, this investigator concluded that the room could be tightly closed for an hour with the gas heater burning without any material effect on a human being. The supreme court reversed the judgment of the court below and remanded the case for a new trial. The court pointed out that such disastrous results do not inevitably follow the use of a gas heater in a closed bathroom for fifteen or twenty minutes, without a vent pipe from the heater to the outer air; that there was no expert testimony that a vent pipe was necessary, and that the medical testimony bordered on the field of pure speculation. The attending physician admitted that he had had no prior experience in the treatment or examination of poisoning cases, and if proper objection had been interposed he might have been held not qualified to testify as to his belief concerning the cause of death.

Undetected Injury to Kidney

(Schweitzer v. Doepke (Wis.), 218 N. W. 188)

The plaintiff, in an automobile collision resulting from the defendant's negligence, was thrown violently forward on his steering wheel and then back against the seat. Immediately after the accident he was in severe pain, was nauseated, and passed bloody urine for two or three days. He was in good health and physically sound before the accident, but after it he lost weight and became extremely nervous. He was unable to lift; unable to climb ladders; unable to work as a contractor painter, his former business, on ceilings. He had difficulty in walking, starting, and stopping; difficulty in stooping over; he tired quickly and suffered from headaches and dizziness. His physicians attributed his condition in part to an injury to the spine. When they testified, a year and a half after the accident, no roentgenogram had been taken. Then, on application of the defense, a roentgenogram was taken, and physicians for the defense testified that they found that the plaintiff had a greatly enlarged, diseased kidney. They claimed that this was sufficient to account for his disability and that it did not result from the accident. They did not find an injury to the spine. The jury, however, had the testimony of the plaintiff's experts, and particularly the testimony of the physician who treated the plaintiff immediately after the accident, to the effect that his disability at the time of the trial was due to the accident. It was for the jury to find the fact from the evidence. The judgment in favor of the plaintiff in the trial court, after a jury trial, was therefore affirmed by the supreme court of Wisconsin on appeal.

Society Proceedings

COMING MEETINGS

District of Columbia, Medical Society of, Washington, January 2. Dr. C. B. Conklin, 1718 M Street, N. W., Washington, Secretary.

Philippine Islands Medical Association, Manila, December 12-15. Dr. A. S. Fernando, 547 Calle Herran, Manila, Secretary.

Radiological Society of North America, Chicago, December 3-7. Dr. Robert J. May, 5005 Euclid Avenue, Cleveland, Secretary.

Society of American Bacteriologists, Richmond, Va., December 27-29. Dr. James M. Sherman, Cornell University, Ithaca, N. Y., Secretary.

Southern Surgical Association, White Sulphur Springs, W. Va., December 11-13. Dr. R. L. Payne, Medical Arts Bldg., Norfolk, Va., Sec'y.

Western Surgical Association; Chicago, December 14-15. Dr. Harry P. Ritchie, 914 Lowry Building, St. Paul, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Diseases of Children, Chicago

36: 651-874 (Oct.) 1928

*Self Selection of Diet by Newly Weaned Infants. C. M. Davis, Chicago.—p. 651.
*Communicating Hydrocephalus: So-Called Idiopathic Hydrocephalus. J. H. Globus, New York.—p. 680.
*Initial Fever in Tuberculosis. A. Wallgren, Göteborg, Sweden.—p. 702.
*Calcium and Phosphorus Metabolism of Epileptic Children Receiving Ketogenic Diet. M. V. K. Nelson, Iowa City.—p. 716.
*Studies in Immunity: I. Nonspecific Factors Influencing Reaction of Skin to Tuberculin. A. G. Mitchell and Others, Cincinnati.—p. 720.
*Blood in Stools of New-Born. B. E. Bonar, Salt Lake City.—p. 725.
*Seasonal Variation of Antirachitic Effect of Sunshine: II. F. F. Tisdall and A. Brown, Toronto.—p. 734.
*Respiratory Metabolism in Infancy and in Childhood: X. Respiratory Exchange in Marasmus: Specific Dynamic Action of Food in Normal and in Marasmic Infants. S. Z. Levine, J. R. Wilson and G. Gottschall, New York.—p. 740.
Distribution of Globulin and Albumin Fractions in Blood and in Urine of Nephrosis. F. W. Schlutz, W. W. Swanson and M. R. Ziegler, Minneapolis.—p. 756.
*Intra-Uterine Lobar Pneumonia and Pneumococcemia. A. S. Gordon and M. Lederer, New York.—p. 764.
Fetal Peritonitis Following Spontaneous Rupture of Large Intestine. A. E. Fischer, New York.—p. 774.
*Pilonidal Sinus as Route of Infection in Case of Staphylococcus Meningitis. W. Ripley and D. C. Thompson, Montclair, N. J.—p. 785.
Temporary Amaurosis Complicating Pertussis. A. Litvak, New York.—p. 789.
Premature Infant, Birth Weight 680 Grams, with Survival. D. S. Pulford and W. J. Blevins, Woodland, Calif.—p. 797.
Cerebrospinal Fluid in Infants and in Children. A. Levinson, Chicago.—p. 799.
Hieronymous Mercurialis, 1530-1606. J. Ruhräh, Baltimore.—p. 819.

Self Selection of Diet by Newly Weaned Infants.—This experiment by Davis is described as that of (1) allowing newly weaned infants to choose their own foods in such quantities as they may desire from a fairly wide range of commonly used natural food materials, unmixed, unseasoned and unaltered except, in the case of some, by cooking in the simplest manner, and (2) assembling data on the food consumed and the condition of the infants. The foods used included meats (muscle cuts), grandular organs, sea foods, cereals, bone products, eggs, milk, fruits, vegetables and sea salt. Both sweet and sour (lactic) milk, two kinds of cereals, animal protein foods, and either fruits or vegetables were served at each meal according to a fixed schedule. Each article, even salt, was served in a separate dish, salt not being added to any, nor was milk poured over the cereal. Food was not offered to the infant either directly or by suggestion. The nurse's orders were to sit quietly by, spoon in hand, and make no motion. When, and only when, the infant reached for or pointed to a dish might she take up a spoonful and, if he opened his mouth for it, put it in. She might not comment on what he took or did not take, point to or in any way attract his attention to any food, or refuse him any for which he reached. He might eat with his fingers or in any way he could without comment on or correction of his manners. The tray was to be taken away when he had definitely stopped eating, which was usually after from twenty to twenty-five minutes. From the results obtained with three infants it appears that the self selected diet of simple, natural foods offers a safe means of dietary experimentation with breast-fed infants of weaning age. Thus far, support is not given to the prevailing belief that the infant of this age cannot, because of his age, digest or use any of these simple natural foods of adult life, or that glands or muscle cuts of meat which have been shown to be especially valuable proteins in the variety and combinations of their amino-acids should be excluded from his diet. From the standpoint of digestion and as far as could be judged by the criteria mentioned, the diet selected by these infants was optimal, since in only one, and then only in the presence of an acute infection, was there any deviation from digestive conditions that at the present time are generally considered to be optimal. From the standpoint of nutrition, conclusions as to the success of the self selected diet for these infants are not warranted from a continuance of it for periods of only six (two infants) and twelve (one infant) months. The immediate results appear to be equal at least to the best results obtained by commonly prescribed diets in growth, weight, bone development, musculature, general vigor and appearance of health and well being.

Idiopathic Hydrocephalus.—In two of the five cases of internal hydrocephalus reported by Globus, there was almost complete obliteration of the subarachnoid channels, particularly at the point of their origin from the cisternae. In the absence of inflammatory exudative or productive changes, such as are caused by bacterial invasion, and in view of the embryonal features retained by the pia-arachnoid membrane, it is believed that the developmental defect is responsible for the failure of the subarachnoid space to attain the normal patency of its distributing channels.

Initial Fever in Tuberculosis.—On the basis of his observations in six cases, Wallgren concludes that after tuberculous infection, a gradual change develops in the body, which, as a rule, is demonstrable at first only by means of large intracutaneous injections of tuberculin, but later reaction may follow smaller and smaller doses. The allergy develops gradually and does not manifest itself externally in any obvious way. In certain cases, however, the change or increase in allergy takes place more rapidly, and the organism acquires the power to react more intensively against the tuberculous virus; this change may show itself in a rise of temperature—Koch's initial fever. Sometimes, in children beyond infancy, tuberculous infection may result in a rapid development of allergy, one of the phenomena of which may be erythema nodosum.

Calcium and Phosphorus Metabolism in Epilepsy.—Determinations were made by Nelson of the calcium and phosphorus intake and output of three epileptic children receiving a ketogenic diet. In each instance, the output of calcium and phosphorus exceeded the intake. There was a shift of the major excretion from the stool to the urine, the increase of urinary calcium being proportionately greater than the increase of urinary phosphorus. The calcium and phosphorus values of the blood during fasting were within normal limits.

Reaction of Skin to Tuberculin.—Mitchell et al. assert that a positive reaction of the skin to tuberculin is approximately from two to four times as frequent during the convalescent afebrile stage as during the acute stage of such diseases as measles, diphtheria, scarlet fever, varicella, poliomyelitis, pneumonia, influenza, gastro-enteritis and the like. There is some evidence that larger doses of tuberculin may cause a positive reaction to occur during the febrile stage of these diseases. Readings of tuberculin reactions during acute diseases should be continued for several days, as the skin response may be delayed longer than forty-eight hours.

Blood in Stools of New-Born—The benzidine test for occult blood was performed by Bonar on 1,518 stools of 109 newly born infants during the first ten days of life. The reaction was positive in 446, or 29.38 per cent. In only eight, or 7.33 per cent of the infants, were stools negative for blood passed throughout the period of observation. The greatest percentage of positive reactions was obtained on the second, third and fourth days, the figures being 37.59, 44.04 and 38.04, respectively. Macroscopic blood was observed thirteen times; in only one was the hemorrhage severe, and this was not repeated. Fifty-one samples of the breast milk of twenty-three mothers were examined for occult blood, and six gave positive reactions. In only one instance was a second positive reaction obtained. Examination of the lining of the gastro-intestinal tract of two infants who died during the course of this study showed hyperemia of the small bowel, especially in the upper third of the bowel, and occasional annular areas of intense hyperemia with a few petechiae. Ulcerations were not found macroscopically or microscopically. The solitary and aggregate lymph follicles, as well as the mesenteric glands of

this portion of the small intestine, were enlarged. A possible explanation for occult bleeding in the new-born is suggested; namely, that during the first few days of life the small bowel is rendered hyperemic through irritation by the early products of digestion, by the initial bacterial invasion, or by both. Hyperemia, occurring at a time when it is known that there is a prolongation of the bleeding and coagulation times of the blood, would favor the loss of blood from the involved area of the bowel, perhaps by rupture of the overdistended smaller vessels or by diapedesis. Pathologic examination of the gastrointestinal tracts of two infants substantiates this explanation. The so-called initial diarrhea of the new-born is probably evidence of the continuation of the irritation of the bowel and is seen much more commonly than one would assume from reading the literature. It is too often ignored, and more attention should be paid it.

Seasonal Variation of Antirachitic Effect of Sunshine.—The antirachitic effect of the sun's rays was studied by Tisdall and Brown throughout a period of one year. The sun's rays during the latter part of October, all of November, December and January and the first part of February in the latitude of Toronto produce a slight but definite antirachitic effect on rats fed on a rachitogenic diet. A sharp increase occurs in the antirachitic effect of sunshine about February 15. This increased antirachitic effect of sunshine continues throughout the latter part of February, all of March, April, May, June, July, August and September and during the first half of October. The antirachitic effect of sunshine during April, May, June, July and August is appoximately eight times as great as during November, December and January. A marked decrease occurs in the antirachitic effect of sunshine about October 15.

Respiratory Exchange in Marasmus.—The production of heat by four normal infants and four marasmic infants was determined by Levine et al. in forty-nine respiration chamber observations following small meals of cow's milk and large fat, dextrose (with and without insulin administration), mixed and protein (casec) meals of comparable size and composition. These studies do not yield evidence in favor of the view that an uneconomical utilization of any of the principal foodstuffs plays a usual or important rôle in the causation of marasmus.

Intra-Uterine Lobar Pneumonia.—Gordon and Lederer reported a case of congenital or intra-uterine pneumonia. The patient, a secundipara, developed pleurisy and pneumonia when four months' pregnant, made a rapid recovery and continued the pregnancy. During the eighth month of pregnancy, she again contracted pneumonia, complicated by pleurisy and acute follicular tonsillitis. A blood culture on admission to the hospital was positive for type IV pneumococcus. Two days later, labor was precipitated and the patient was delivered of a premature boy weighing 5.5 pounds (2.5 Kg.). The infant appeared normal for three days and took the feedings well. On the third day, he refused the bottle, appeared sluggish, had a temperature of 102.5 F., and died several hours later in convulsions. Autopsy revealed an extensive lobar pneumonia, pleurisy, empyema and a generalized sepsis. A culture from the pus in the chest and a culture from the heart's blood showed a type IV pneumococcus—the same organism that was found in the mother's blood culture two days before the delivery.

Pilonidal Sinus Infection and Meningitis.—The occurrence of a pilonidal sinus extending to and communicating with the arachnoid space was the outstanding feature of interest in the case reported by Ripley and Thompson.

Annals of Internal Medicine, Ann Arbor, Mich.

2: 309-400 (Oct.) 1928

Progress of Medical Research in South. T. Z. Cason, Jacksonville, Fla.—p. 309.
*Blackwater Fever. E. R. Whitmore, Washington, D. C.—p. 316.
Dietetic Management of Diabetic in Doctor's Office. W. H. Olmsted, St. Louis.—p. 325.
Treatment of Diabetes: Accessory Forms of Treatment. W. M. Bartlett, Bernardsville, N. J.—p. 334.
*Experience with Ketogenic Dietary in Migraine. T. G. Schnabel, Philadelphia.—p. 341.
Influence of Syphilis on Course of Other Diseases. J. S. McLester, Birmingham, Ala.—p. 348.
Continuous Care of Heart Patients by Prolonged Use of Drugs, Physical Therapy and Psychotherapy. L. F. Bishop, New York.—p. 352.
*Relationship of Precordial Stress, Blood Uric Acid and Salicylate Therapy. M. A. Bridges, New York.—p. 367.

Studies on Blackwater Fever.—In Cuba Whitmore was able to study malaria and blackwater fever in a white race, native to the country, and to compare this race with the Haitian and Jamaican negroes. A large number of Haitian negroes are brought into the country during the cane cutting season, and return to Haiti when the cane cutting is over: they are in the country from about the first of January to some time in May. Malaria is common among these negro laborers, but blackwater fever is very rare. However, among the native Cubans, blackwater fever is quite prevalent during the four months from March to June, and a few cases occur at any time during the year. Interesting differences in the prevalence of blackwater fever in different families were observed in Cuba. Nothing in the occurrence of blackwater fever in Cuba is inconsistent with the belief that it is caused by neglected chronic malaria, and everything observed there is in favor of that belief. There are striking differences in the racial, family and individual distribution of blackwater fever in Cuba, but much more information must be collected and studied before conclusions can be drawn. Everything observed in Cuba supports the belief that, along with other methods of malaria prophylaxis, the efficient and intelligent use of quinine in the treatment of malaria, and in malaria prophylaxis when required, does not increase the incidence of blackwater fever.

Ketogenic Diet in Migraine.—In cases of migraine, Schnabel has kept the carbohydrate intake as low as possible, the amount ingested ranging from 5 to 15 or 20 Gm. a day. The protein intake has been fixed at about 1 Gm. per kilogram of body weight and the remainder of the caloric requirement has been supplied by fats. The caloric need of patients was tentatively estimated on the basis of height, weight, sex and physical activity. Of the eighteen patients treated according to this plan, three were not relieved, even though a state of ketosis had been established, and they seem, if anything, to have more severe and more frequent attacks. Six other patients did not return frequently enough and were lost even to a follow up inquiry. Nine patients, however, had some relief, as estimated by the increased frequency and the severity of the attacks when they were renewed. Three of these patients have not had any return of the headaches but they happen to have had longer periods of freedom before the inauguration of the diet. Of those whose attacks have recurred, three confessed to a break in diet and an examination of the urine failed to show ketones. Schnabel feels sufficiently encouraged to continue with the high fat method.

Blood Uric Acid in Angina Pectoris.—In a series of nine consecutive patients suffering from angina pectoris, the mean uric acid reading was found by Bridges to be at or above the upper physiologic limit. Confirmation of the diagnoses was established by qualified consultation. Therapy was directed at the reduction of the blood uric acid. In all cases, complete cessation of symptoms was accomplished within a shorter or greater length of time following the institution of treatment, depending on the mode of therapy. In all cases a definite response in the reduction of the blood uric acid readings was noted. The hemoglobin determination in all cases presented a slow but gradual increase. In several cases, a transient albuminuria was encountered. In no instance, while the patients were under observation, have any of the original symptoms recurred. At no time were any untoward permanent salicylate effects noted.

Archives of Physical Therapy, X-Ray, Radium, Omaha

9: 433-474 (Oct.) 1928

*Selected Surgical Procedures with Surgical Diathermy. G. E. Ward, Baltimore.—p. 433.
*Diathermy in Pneumonia. H. E. Stewart, New Haven, Conn.—p. 437.
Perils of Obesity. J. C. Elsom, Madison, Wis.—p. 439.
Treatment of Bone and Joint Injuries. F. H. Walke, Shreveport, La.—p. 443.
Ultraviolet Irradiation in Skin Diseases. C. B. Norris, Youngstown, Ohio.—p. 448.
Infections and Toxemia of Biliary Tract with Medical and Physical Therapy Treatment. H. M. Johnson, Buffalo.—p. 452.
Phototherapeutic Facts and Fallacies. J. E. G. Waddington, Detroit.—p. 459.

Use of Diathermy in Surgical Treatment.—Ward has been greatly impressed with the value of diathermy for surgical use. He has used electrothermic methods in most of the

various kinds of abdominal operations, such as cholecystectomies and gastro-enterostomies. There is a definite advantage in the reduced bleeding in these operations. Diathermy is especially useful in opening the viscera preparatory to the making of an anastomosis, or in resecting metastatic lymph glands in the abdomen and pelvis and nodules in the intestinal wall. It is valuable in the treatment of hemorrhoids. It is a rapid method of destroying the lining of epithelial cysts, saving long, difficult and dangerous operations. It is possible to destroy metastases in the intestinal wall and invert them with excellent healing.

Treatment of Pneumonia with Diathermy.—After six years' experience with diathermy in this disease, Stewart for the first time definitely asserts that a lessened mortality has been obtained in treated cases, which statement he feels is now fully substantiated. The word "cure" has not been used or implied. The disease has not been shortened in his hands, but it has been made more tolerable and less often fatal. The problem of the future in this work revolves around dosage, frequency and duration of application of the treatments.

Florida M. Association Journal, Jacksonville

15: 175-222 (Oct.) 1928

Uterine Hemorrhage Without Gross Change in Pelvic Organs. R. M. Klussman, Fort Lauderdale.——p. 189.
Sinus Question. R. E. Repass, Fort Lauderdale.—p. 193.
Accidental Injuries to External Genitals of Male. R. B. Harkness, Lake City.—p. 198.
Synergistic Analgesia in Labor. F. Thorpe, Tampa.—p. 200.
Physical Therapy an Adjunct to Modern Therapy. B. J. Martin, Miami. —p. 204.
Fractures of Upper and Lower Jaw and Their Correction with Dental Splint. C. W. Moremen, Ocala.—p. 207.
Diarrhea Caused by Lamblia Intestinalis: Case. W. Quillian, Coral Gables.—p. 209.
Some Etiologic Factors of Dental Caries. C. J. Masters, Jacksonville. —p. 212.

Georgia M. Association Journal, Atlanta

17: 435-483 (Oct.) 1928

Prognosis of Tumors: Cell Differentiation and Its Influence on Treatment. E. L. Bishop, Atlanta.—p. 435.
Supracondylar Fractures of Humerus: Method of Accurate Reduction. L. Thornton, Atlanta.—p. 440.
Better Medical Society. E. C. McCurdy, Shellman.—p. 445.
What Is Needed to Improve Practice of Obstetrics. J. R. McCord, Atlanta.—p. 449.
Medical Economics. W. P. Harbin, Rome.—p. 454.
Home Management of Diabetes Mellitus. W. E. McCurry, Hartwell. —p. 458.

Johns Hopkins Hospital Bulletin, Baltimore

43: 261-313 (Nov.) 1928

*Endemic Goiter in Rabbits: I. Incidence and Characteristics. A. M. Chesney, T. A. Clawson and B. Webster, Baltimore.—p. 261.
Id.: II. Heat Production in Goitrous and Nongoitrous Animals. B. Webster, T. A. Clawson and A. M. Chesney, Baltimore.—p. 278.
Id.: III. Effect of Administration of Iodine. B. Webster and A. M. Chesney, Baltimore.—p. 291.

Endemic Goiter in Rabbits.—Enlargements of the thyroid gland have been observed by Chesney et al. in a series of 486 rabbits that have been under observation for varying intervals since September, 1924. The frequency and extent of the condition have been such as to warrant the use of the descriptive term "endemic goiter." Although most of the animals had been used for the study of experimental syphilis, it was possible to demonstrate that syphilitic infection was not essential to the development of the condition. Time was found to be an important factor in its development, however. The gross and microscopic appearance of the glands was that of a hyperplastic thyroid. Many of the animals with enlarged thyroids had also enlarged suprarenal glands. The essential cause for the development of the goiter has not been discovered.

Journal of Cancer Research, New York

12: 83-194 (June) 1928

Relation of Heredity to Cancer. M. Slye, Chicago.—p. 83.
*Etiology of Primary Lung Carcinoma. R. E. Smith, Philadelphia.—p. 134.
New Transplantable Rat Tumor. K. Sugiura, New York.—p. 143.
Production of Colloidal Lead or Salts of Lead. M. C. Reinhard, K. W. Buchwald and K. L. Tucker, Buffalo.—p. 160.
*Cancer Irradiation with Cathode Rays. M. F. Guyer and F. Daniels, Madison, Wis.—p. 166.
Adenocarcinoma of Gallbladder of Cow. W. H. Feldman, Rochester, Minn.—p. 188.

Etiology of Primary Carcinoma of Lung.—A study made by Smith of forty-eight cases of primary human carcinoma proved by autopsy did not reveal any definite etiologic factor. Three series of mice were exposed to coal tar fumes and to fumes from the exhaust of a Ford engine or were painted with gasoline, respectively, for five months. Carcinoma of the lungs did not occur in the coal tar series; it occurred once in twenty-six (or 3.8 per cent) of those exposed to exhaust gas and once in twenty-nine (or 3.4 per cent) of those painted with gasoline. This proportion was not markedly greater than the spontaneous occurrence of lung carcinoma. Neither the experiments nor the human cases give any support to the suggestion that carcinoma of the lung is caused by exposure to fumes of coal tar or gasoline.

Irradiation of Cancer with Cathode Rays.—Experiments made by Guyer and Daniels have shown that when tumors are not too far advanced, cathode rays have a specific detrimental effect on the tumor tissue of the variety used. The beneficial effects of the rays are generally confined to the earlier treatments. Successive irradiations after the initial improvement seem to be more injurious than otherwise. A single long exposure appears to yield the best result. The most curative treatment was found to be a one minute exposure at a distance of 2 cm. with a voltage of 140 kilovolts and a space current of 1.4 miliamperes. Areas of the abdomen when given standard treatment are rendered immune to immediate tumor transplants, although they become susceptible as they begin to heal. The treatment of one tumor does not affect another tumor in the same animal. The action of cathode rays on tumor is direct, therefore, and not systemic.

Journal of Clinical Investigation, Baltimore

6: 171-345 (Oct. 20) 1928

*Relation of Anoxemia to Type of Breathing in Pneumonia: Study of Respiration by Means of Body Plethysmograph. C. A. L. Binger and J. S. Davis, Jr., New York.—p. 171.
*Effect of Morphine on Respiration in Pneumonia. J. S. Davis, Jr., New York.—p. 187.
*Anoxemia in Pneumonia: Relief by Oxygen Inhalation. C. A. L. Binger, New York.—p. 203.
*Pathogenesis and Recovery in Erysipelas. T. Francis, Jr., New Haven, Conn.—p. 221.
*Effect of Atrophine on Output of Hearts of Normal Men. W. C. Smith, C. S. Burwell and M. J. DeVito, Nashville, Tenn.—p. 237.
*Cardiac Output of Single Individual Observed Over Period of Five Years. C. S. Burwell and G. C. Robinson, Nashville, Tenn.—p. 247.
Protein Content of Cerebrospinal Fluid in Myxedema. W. O. Thompson, P. K. Thompson, E. Silveus and M. E. Dailey, Boston.—p. 251.
*Chemical Changes Occurring in Body as Result of Certain Diseases: III. Composition of Plasma in Severe Diabetic Acidosis and Changes Taking Place During Recovery. A. F. Hartmann and D. C. Darrow, St. Louis.—p. 257.
*Energy Exchange in Obesity. J. M. Strang and F. A. Evans, Pittsburgh.—p. 277.
Gaseous Exchange Following Administration of Dihydroxyacetone. W. R. Campbell and S. Soskin, Toronto.—p. 291.
Significance of Respiratory Quotients After Administration of Certain Carbohydrates. W. R. Campbell and E. J. Maltby, Toronto.—p. 303.
*Tolysin in Subacute Rheumatic Carditis. F. D. W. Lukens, Philadelphia. —p. 319.
*Function of Kidneys in Patients Suffering from Chronic Cardiac Disease Without Signs of Heart Failure. H. J. Stewart and J. F. McIntosh, New York.—p. 325.

Relation of Anoxemia to Type of Breathing in Pneumonia.—By means of a specially designed body plethysmograph, the respiratory movements have been studied by Binger and Davis in a group of patients suffering from acute pneumonia; also the oxygen content, capacity and percentage of saturation have been measured. Observations have been made during the acute stage of the disease, during convalescence, and after morphine administration and oxygen inhalation. Rapid and shallow breathing and anoxemia are commonly associated phenomena. No clear evidence can be adduced, however, that the anoxemia which occurs in lobar pneumonia is the result of rapid and shallow breathing, though in some cases extremely rapid and shallow breathing or the depression of ventilation brought on by morphine may accentuate already existing oxygen want. Oxygen inhalation may restore the arterial blood to a normal saturation without influencing pulmonary ventilation.

Effect of Morphine on Respiration in Pneumonia.—The respiratory rate, tidal air and minute volume of pulmonary ventilation have been measured by Davis in fifteen cases of pneumonia before and after administration of morphine. In

most instances a reduction in respiratory rate, tidal air and minute volume follows the administration of morphine. Accompanying the reduction in pulmonary ventilation there is, as a rule, a diminution in the oxygen content of the arterial blood without a corresponding change in the oxygen capacity. There occurs, therefore, a decrease in the percentage of saturation of the arterial blood. This change may be only a small one but is usual. In only three cases out of nineteen was it not observed. The average drop was 5 per cent. In one patient it was not observed. In one patient it was as great as 21.3 per cent. When there is much pleuritic pain, the relief brought by morphine may allow the pulmonary ventilation to increase and thus raise slightly the percentage of saturation of the arterial blood. In the presence of an extensive pulmonary involvement with diffuse, moist râles, the administration of morphine may result in a dangerous degree of anoxemia.

Anoxemia in Pneumonia; Relief by Oxygen Inhalation.—Binger points out that there appears to be a positive correlation between anoxemia and mortality. Moreover, the level of oxygen saturation in the arterial blood of a patient exposed to 40 per cent oxygen is of prognostic importance, since the survivors usually reach a level above 90 per cent, while the fatal cases do so far less often. In a small group of cases selected because of severe anoxemia (oxygen saturation below 60 per cent) Binger has considered the physical signs and autopsy observations in relation to the arterial oxygen saturation. The presence of extensive, rapidly spreading pulmonary lesions with much moisture, exudate or transudate appears to be common to this group. In what manner this type of lesion brings about anoxemia he is not yet certain. It is in part due to diminished lung volume, in part due to passage of blood through unaerated channels. Such a shunt of blood need not imply a completely consolidated lobe but may result from the collection of intra-alveolar exudate. The degree of interference with oxygenation as well as the response to oxygen inhalation will depend both on the amount and on the character of the exudate. The thin, watery transudate of pulmonary edema which gives rise to outspoken anoxemia in room air may yield quickly to increased partial pressures of oxygen. A thicker plastic exudate, however, may form a fairly effective barrier to the diffusion of oxygen.

Pathogenesis of Erysipelas.—Francis concludes that the pathogenesis of erysipelas is not comparable to the pathogenesis of the specific toxic phase of scarlet fever and that the mechanism of recovery from erysipelas, in adults at least, is not a simple neutralization of a circulating toxin through the development of an antitoxin but rather is more intimately related to the development of allergy to products of the growth and dissolution of streptococci in the erysipelatous lesion. Furthermore, the failure to find toxin in the blood and the usual presence of a neutralizing antibody in the early acute stage of the disease provide little basis for the view that antitoxin treatment in adults should be of particular value in erysipelas.

Effect of Atropine on Heart Output.—Atropine administered intravenously to normal men by Smith et al. produced a marked rise in heart rate, a relatively small rise in cardiac output per minute and no change in pulse pressure or metabolic rate. The acceleration of the heart rate is accompanied by a diminution of the output of the heart per beat.

Heart Output.—Thirteen measurements of the cardiac output of a single subject over a period of five years are reported by Burwell and Robinson. The output of the heart remained relatively unchanged throughout that period.

Chemical Changes Occurring in Body in Diabetic Acidosis.—Hartmann and Darrow conclude that, in severe acidosis, marked concentration of the plasma occurs, with, however, slight diminution of total base. Bicarbonate and chloride are diminished relatively more than ketone acid and protein are increased, although increase in ketone acid usually exceeds diminution of bicarbonate. When treatment consists only of administration of water and insulin, with or without carbohydrate, bicarbonate and p_H are at first restored relatively very slowly because, as base is released by oxidation of the salts of the ketone acids, it is claimed in large part by acids other than carbonic, chief among which is chloride. Later secretion of chloride into the urine bound to ammonia aids in the restoration of plasma bicarbonate. Salt solution administration adds little if any toward the early recovery of plasma bicarbonate. Alkali (sodium bicarbonate) when properly administered along with water, insulin, carbohydrate and salt solution, may provide a very rapid, safe and complete relief from acidosis.

Energy Exchange in Obesity.—Strang and Evans assert that the energy exchange in the obese, when compared to what would be normal for them, if on proper weight, is increased. This increase in energy exchange is of the same magnitude as the surface area increase beyond that normal for them. When obese patients are reduced by dietary measures alone, the energy exchange diminishes proportionally much more than the weight or surface area. In spite of this drop in basal calories, the metabolism never goes below limits normal for proper weight. This observation contrasts strikingly with the extreme energy economy in the individual of normal weight who is reducing by diet, as is shown by a comparison with Benedict's figures. There is therefore no evidence of an energy economy in the obese.

Effect of Neocinchophen in Subacute Rheumatic Carditis.—In carefully selected and controlled cases of subacute rheumatic heart disease in children, no effect whatever of neocinchophen was observed by Lukens on the infectious process as measured by the fever, weight and leukocytosis. No toxic action was noted in any of the cases.

Function of Kidneys in Chronic Heart Disease.—The urea concentration index (Van Slyke index), the phenolsulphonphthalein excretion and the concentration and dilution tests have been studied by Stewart and McIntosh in thirty-five patients with chronic circulatory disease when in a compensated state. It was found that: In ten patients all the tests for renal function gave normal values. The urea concentration index was normal in all except eight patients. The phenolsulphonphthalein excretion was subnormal in only one patient. In seventeen patients, that is to say, in half the patients studied, the dilution test revealed abnormality in the ability to excrete the normal amount of water, in the failure of the specific gravity to fall, or in both. The concentration test showed impairment in ten patients. Diminished renal function was found in all except three patients who were more than 30 years of age. A correlation exists between arteriosclerosis and hypertension and decrease in renal function. The impairments of renal function were found more frequently in patients who suffered from congestive heart failure. There was no correlation between duration of heart disease and impairment in renal function.

Journal of Experimental Medicine, Baltimore

48: 603-749 (Nov. 1) 1928

Virus III Encephalitis. T. M. Rivers and F. W. Stewart, New York.—p. 603.
Surface Tension of Serums as Affected by Precipitin Reaction. S. G. Ramsdell, Philadelphia.—p. 615.
*Etiology of Oroya Fever: XIII. Chemotherapy in Experimental Bartonella Bacilliformis Infection. H. Noguchi, New York.—p. 619.
*Effects of Sodium Chloride on Chemical Changes in Blood of Dog After Obstruction of Cardiac End of Stomach. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 627.
Blood Chlorides in Proteose Intoxication. R. L. Haden and T. G. Orr, Kansas City, Kan.—p. 639.
Paratyphoid Infection in Guinea-Pigs: V. Incidence of Carriers During Endemic Stage. J. B. Nelson, Princeton, N. J.—p. 647.
Biology of Metals: VII. Influence of Lead on Development of Chick Embryo. F. S. Hammett and V. L. Wallace, Philadelphia.—p. 659.
Effect of Light on Blood and Tissue Cells: II. Action of Light on Erythrocytes in Vitro. W. R. Earle, Nashville, Tenn.—p. 667.
Id.: III. Action of Light on Fibroblasts in Vitro. W. R. Earle, Nashville, Tenn.—p. 683.
Experimental Pneumonia in Guinea-Pigs: I. Effect of Certain Toxic Autolysates of Pneumococci. J. T. Parker and A. M. Pappenheimer, New York.—p. 695.
Studies on Bacteriophage of D'Herelle: XI. Inquiry into Mode of Action of Antibacteriophage Serum. R. S. Muckenfuss, New York.—p. 709.
Id.: XII. Concerning Production of Phage from Bacteral Cultures. R. S. Muckenfuss, New York.—p. 723.
*Inheritance of Agglutinogens of Human Blood Demonstrable by Immune Agglutinins. K. Landsteiner and P. Levine, New York.—p. 731.

Chemotherapy of Oroya Fever.—The therapeutic effect of several antiparasitic chemicals on experimental verruga peruana is described by Noguchi. The drugs were administered by intravenous injection according as the nodules were already developed to an approximate maximum or were still in the active period of growth. The effect of the drugs was different under the two circumstances of their administration. When they were given after the maturity of the nodules they

hastened the regressive process, but when given during active growth of the lesions no action whatever was detected. *Bartonella bacilliformis* in culture is acted on injuriously by a number of the chemicals employed in the therapeutic tests, the most active being formaldehyde and acriflavine base.

Treatment of Toxemia Caused by Obstruction of Cardia.—The effect of different methods of treatment on the toxemia caused by obstruction of the cardiac end of the stomach is reported by Haden and Orr. The average duration of life of untreated dogs is three days. Three dogs treated with 1 per cent salt solution subcutaneously lived thirty-two, thirty-six and forty-five days, respectively, without developing a toxemia. Two per cent dextrose similarly given does not alter the course of the toxemia. Concentrated salt solution in small quantities given directly into the jejunum prevents the marked rise in nonprotein nitrogen but does not materially prolong life. Release of the obstruction does not change the course of the toxemia in untreated animals. The subcutaneous injection of 1 per cent solution of sodium chloride after release of the obstruction causes a rapid return of the blood to normal and allows the animal to recover. A similar amount of fluid given as 2 per cent dextrose does not alter the course of the toxemia after release of the obstruction.

Inheritance of Agglutinogens.—The heredity of two agglutinable structures demonstrable by immune agglutinins was studied by Landsteiner and Levine in 166 families. From the data collected it is evident that one deals with a case of mendelian inheritance. The main result of the studies is the demonstration that it is feasible to investigate the heredity of serologic structures of human blood other than the group agglutinogens. Irrespective of the ultimate theory it seems very probable that the properities M and N do not appear in the offspring when they are absent in both parents—a conclusion substantiated by the examination of ten families with forty-six children. These observations offer the prospect of forensic application to cases of disputed paternity and, in the opinion of the authors, a correct decision could already be given, at least with great probability, provided the reagents are available and the method properly applied.

Journal of Infectious Diseases, Chicago

43: 273-362 (Oct.) 1928

*Recent Cases of Undulant Fever in New York State. R. Gilbert and M. B. Coleman, Albany, N. Y.—p. 273.
Rheumatic Fever: II. Allergic Reactions with Toxin-Producing Strain of Nonmethemoglobin-Forming Streptococcus Isolated from Rheumatic Fever. K. E. Birkhaug, Rochester, N. Y.—p. 280.
Detoxifying, Diffusing, Germicidal and Surface Tension Depressing Properties of Soaps. F. R. Davison, New Brunswick, N. J.—p. 292.
*Infection of Laboratory Worker with Bacillus Influenzae. J. E. Walker, Baltimore.—p. 300.
*Staphylococcus Aureus Conjunctivitis of New-Born. A. B. Thomas, Pittsburgh.—p. 306.
Chemical and Bacterial Inhibition of Gas Formation in Bacterial Cultures. M. Ishikawa, Chicago.—p. 311.
Influence of Iodide on Bacterial Decomposition of Nitrogenous Substances. M. Ishikawa, Chicago.—p. 321.
Thermal Death Point of Brucella Abortus in Milk. R. Boak and C. M. Carpenter, Ithaca, N. Y.—p. 327.
Classification of Bacterium Alcaligenes Pyocyaneum and Fluorescens. B. L. Monias, Chicago.—p. 330.
Antigenic Analysis of Strains of Bacillus Typhosus. L. C. Havens, Montgomery, Ala.—p. 335.
Comparison of Glycerol and Brilliant Green Bile for Treatment of Feces for Isolation of Typhoid Organisms. L. C. Havens and C. Ridgway, Montgomery, Ala.—p. 345.
Septic Infection Due to Bacterium Morgani I. T. Thjötta, Oslo, Norway.—p. 349.
Bacteriologic and Bacteriophagic Study of Infected Urines. J. A. Caldwell, Dallas, Texas.—p. 353.

Undulant Fever in New York.—Gilbert and Coleman have seen thirty-five cases of undulant fever, proof that these cases are not uncommon. They are distributed rather generally throughout New York State. In none of the cases studied was there a history of contact of patient with goats or hogs, but fourteen patients were known to have used raw cow's milk. In nine instances, abortions were found to have occurred in the herds from which the milk was obtained. A consideration of the data available indicates three possible reasons why cases of undulant fever are not reported more frequently in districts where unpasteurized milk is used from herds in which contagious abortion is prevalent. Many of the severe infections have probably been diagnosed as atypical cases of typhoid, influenza or even tuberculosis or malaria; mild forms may have presented so few symptoms that physicians were not consulted; and the blood from some cases of undulant fever may not have agglutinated cultures of *B. melitensis* or *B. abortus*.

Infection of Laboratory Worker with Influenza.—The course of a laboratory infection with Pfeiffer's bacillus is described by Walker. The symptoms consisted of rhinitis, conjunctivitis and bronchitis. There was no fever. Organisms serologically identical with the laboratory strain were isolated from the nose, conjunctivae and sputum. The disease would ordinarily be classified as a severe cold, though the diagnosis of sporadic influenza cannot be entirely eliminated. The infection demonstrates anew that some strains of the organism have an extraordinary avidity for attacking respiratory mucous membrane as the primary cause of disease.

Staphylococcus Conjunctivitis of New-Born.—Thomas asserts that an acute purulent conjunctivitis may occur in infants without evidence of a preexisting vaginitis in the mother. In 100 consecutive cases of purulent conjunctivitis of the new-born, none appeared to be caused by the gonococcus. Culture of *Staphylococcus aureus* isolated from the conjunctivae and some other lesions that were present seemed to belong to a single strain and were atypical in staining qualities, metabolic reactions with carbohydrates and pathogenicity for animals. This organism was considered to be the causative agent in all the cases and was probably transmitted through contaminated olive oil or boric acid or both.

Maine M. Association Journal, Portland

10: 177-198 (Oct.) 1928

Importance of Curettage Preceding Supravaginal Hysterectomy. L. Davis, Boston.—p. 177.
Newer Gynecology. S. R. Meaker, Boston.—p. 183.
Traumatic Bile Cyst. A. H. McQuillan, Waterville.—p. 193.

Minnesota Medicine, St. Paul

11: 719-760 (Nov.) 1928

Pellagra and Alcoholism. S. E. Sweitzer, Minneapolis.—p. 719.
Acute Nonepidemic Infectious Parotitis. W. R. Humphrey and K. K. Sherwood, Stillwater.—p. 722.
Effect of Surgical Operations and of Bandaging on Respiration. W. S. Lemon, Rochester.—p. 725.
Medical Students Then and Now. O. F. Schussler, Minneapolis.—p. 730.
Tumor of Frontal Lobe Presenting Parkinsonian Syndrome. F. P. Moersch, Rochester.—p. 734.
Tuberculosis Clinics. J. A. Myers, Minneapolis.—p. 737.
*Causes of Deaths from Spinal Anesthesia. E. A. Rygh and D. H. Bessesen, Minneapolis.—p. 744.
Abdominal Pregnancy: Case. H. O. Skinner, St Paul.—p. 748.
Suprarenal Hemorrhage in Infant: Case. L. L. Brown, Crookston.—p. 751.
Multiple Diverticula of Small Intestine: Case. E. J. Simons, Swanville.—p. 752.
Malta Fever: Case. A. B. Stewart, Owatonna.—p. 753.

Causes of Death from Spinal Anesthesia.—Rygh and Bessesen assert that using accurate dosage of nontoxic drugs, with the addition of epinephrine or ephedrine by proper technic of injection, makes practically impossible a fatal issue from respiratory or vasomotor paralysis, the common causes of deaths from this anesthesia. For the former, artificial respiration should be given; for the latter, the Trendelenburg position with injections of fluid. The most important consideration is the blood pressure.

Missouri State M. Association Journal, St. Louis

25: 503-552 (Nov.) 1928

Headaches: Of Ocular Origin. L. Post, St. Louis.—p. 503.
Id.: Of Nasal Origin. A. W. Proetz, St. Louis.—p. 505.
Relation of Headache to Obstetrics and Gynecology. G. C. Mosher, Kansas City.—p. 506.
Headache from Neurologic Aspect. B. L. Elliott, Kansas City.—p. 509.
Layman's Estimate of Medicine. F. M. Pottenger, Monrovia, Calif.—p. 515.
Treatment of Diabetes Mellitus. F. Neuhoff, St. Louis.—p. 519.
Medical Stomach. R. W. Holbrook, Kansas City.—p. 522.
Surgical Stomach. W. F. Holbrook, Kansas City.—p. 524.
*Ascaris Lumbricoides as Cause of Appendicitis: Case. D. D. Cox, Pomona.—p. 527.

Ascaris Lumbricoides in Appendix.—Cox relates the case of a boy who developed an abscessed appendix which probably ruptured because of a roundworm making its way into the appendix.

Nebraska State M. Journal, Norfolk

13: 401-440 (Nov.) 1928

Hypernephroma: Two Cases. P. H. Salter, Norfolk.—p. 401.
*Incidence of Syphilis in Obstetric Clinic at University of Nebraska College of Medicine. E. C. Sage, Omaha.—p. 405.
Sarcoma and Elephantiasis. M. Emmert, Omaha.—p. 412.
Shall Government Be Policeman or Doctor? C. C. Johnson, Lincoln.—p. 414.
Practical Surgery (Cont'd.). J. E. Summers, Omaha.—p. 420.
Some Common Eye Diseases and Internal Secretions. D. D. Sanderson, Lincoln.—p. 428.
Case of Hypoglycemia with Symptoms Resembling Alcoholism. H. E. Harvey, Fairbury.—p. 429.
Some Means for Prevention of Cesarean Section. B. Van Hoosen, Chicago.—p. 430.

Incidence of Syphilis in Obstetric Clinic.—The incidence of syphilis in obstetric patients at the University of Nebraska College of Medicine is 5.5 per cent. In one series of fifty-one patients having a four plus Wassermann reaction there were fifty-two stillbirths and miscarriages in the histories of sixteen patients. In the fourteen patients having a three plus Wassermann reaction there occurred two instances of stillbirths or miscarriages in two patients, in the present and past record of this group. In the thirty-three patients having a two plus Wassermann reaction there occurred ten stillbirths or miscarriages in ten patients. In the thirty-four patients having a one plus Wassermann reaction there occurred seven stillbirths or miscarriages in six patients. In 118 stillbirths at the University Hospital, syphilis was the probable cause in 23.8 per cent of the cases, and this cause of stillbirths headed the list. Death was ascribed to probable syphilis when the mother had a three or four plus Wassermann reaction with the history of repeated miscarriages. Sage feels that every syphilitic woman should be treated during pregnancy with arsphenamine and mercury or bismuth, without any regard to the date of the initial infection, with no regard to a previous intensive treatment, and, finally, without any regard to a negative Wassermann reaction. Particular stress should be laid on the combined mercury-arsphenamine treatment in the middle of pregnancy because the spirochetes are particularly liable to invade the fetus at this time.

New England J. Medicine, Boston

199: 801-854 (Oct. 25) 1928

Effect of Strain on Heart. P. D. White, Boston.—p. 801.
Teaching of Percussion. F. von Müller, Munich.—p. 807.
Meaning of Psychoanalysis. M. W. Peck, Boston.—p. 814.
Ether Day at Massachusetts General Hospital: Introductory Remarks. E. P. Joslin, Boston.—p. 825.
Id.: On Diabetes. G. Lusk, New York.—p. 826.
*Melanoma (Melanotic Sarcoma) of Ovary with Diffuse Discoloration of Skin. J. R. Miller, Hartford, Conn.—p. 830.
Undulant Fever. C. F. Dalton, Burlington, Vt.—p. 837.

199: 855-914 (Nov. 1) 1928

Drug Eruptions. F. Wise, New York.—p. 855.
Regular Health Examinations. B. L. Bryant, Bangor, Me.—p. 856.
Nature, Specificity, Sensitiveness and Practical Value of Kolmer-Wassermann Reaction. J. A. Kolmer, Philadelphia.—p. 857.
What Causes Constipation? W. C. Alvarez, Rochester, Minn.—p. 858.
Medical and Surgical Problems in Prostatic Obstruction. H. H. Young, Baltimore.—p. 859.
Disease of Liver. L. G. Rowntree, Rochester, Minn.—p. 860.
Compression Fractures of Spine. R. B. Osgood, Boston.—p. 861.
Etiology and Early Diagnosis of Bronchiectasis and Lung Abscess. D. T. Smith, Ray Brook, N. Y.—p. 862.
Serum Sickness and Serum Accidents. G. M. Mackenzie, New York.—p. 862.
Varicose Veins and Varicose Ulcers. J. Homans, Brookline, Mass.—p. 863.
Glaucoma. G. S. Derby, Boston.—p. 864.
Colon Irrigations. W. A. Bastedo, New York.—p. 865.
Surgical Treatment of Trigeminal Neuralgia. B. Stookey, New York.—p. 866.
Shoulder Pain. M. Cleveland, New York.—p. 867.
Sterility and Infertility: Causes and Treatment. I. C. Rubin, New York.—p. 868.
Toxic Hepatitis with Splenomegaly Following Pregnancy. J. P. Bowler and R. C. Syvertsen, Hanover, N. H.—p. 869.
Pelvic Outlet Contraction in Pregnancy. C. W. Colby, Exeter, N. H.—p. 871.
Other Side of Country Practice. R. W. Tuttle, Alton, N. H.—p. 874.
Child Labor and Preventive Medicine. C. Brannick, Chicago.—p. 884.

Melanoma of Skin with Discoloration of Skin.—Miller reports a case of melanoma involving the ovaries and suprarenals which is thought to have been primary in a pigmented mole. This patient presented an unusual feature which has not been referred to heretofore in the literature; namely, a uniform discoloration of the skin of the entire body. It is thought that this was due to the presence of a soluble melanin in the blood stream, though the influence of involvement of the suprarenals cannot be disregarded, especially as there was no record of blood pressure or blood sugar examinations.

New Orleans Medical and Surgical Journal

81: 309-376 (Nov.) 1928

Doctor and Public. J. Darrington, Yazoo City, Miss.—p. 309.
Staphylococcic Tracheobronchitis Following Tonsillitis. J. S. Ullman, Natchez, Miss.—p. 311.
Blood Pressure in Pulmonary Tuberculosis. O. W. Bethea, New Orleans.—p. 314.
Comparative Results with Wassermann and Precipitation Tests. H. W. Butler, New Orleans.—p. 317.
*Butler Slide Test. B. G. Efron and C. A. Weiss, New Orleans.—p. 318.
Lymphosarcoma of Ileum: Case. M. O. Miller, New Orleans.—p. 322.
Extensive Osteomyelitis with Massive Resection. O. C. Cassegrain, New Orleans.—p. 326.
Importance of Paranasal Sinus Disease in General Diagnosis. G. M. Street, Vicksburg, Miss.—p. 331.
Treatment of Hay-Fever and Asthma. W. Scheppegrell and N. F. Thiberge, New Orleans.—p. 337.
Intestinal Parasites: Three Cases of "Oxyuris Incognita" Infestation. E. Bass, New Orleans.—p. 342.
Lobar Pneumonia, Type II, with Positive Blood Culture. C. Jamison and H. F. Brewster, New Orleans.—p. 354.

Butler Slide Test for Syphilis.—Efron and Weiss found agreement of the Wassermann and Butler tests in 89.9 per cent, relative agreement in 6.2 per cent and disagreement in 3.9 per cent. The authors urge that both tests should be performed, as they shed a complementary light on each other. The technic of the Butler slide test is simple and the test can be made rapidly, but should be done only by properly trained laboratorians.

New York State J. Medicine, New York

28: 1269-1330 (Nov. 1) 1928

*Repair of Hernia with Fascial Sutures. C. G. Burdick, New York.—p. 1269.
Rôle of Physician in Rearing of Children. A. Goldbloom, Montreal.—p. 1274.
Chronic Choreas, Their Diagnosis and Treatment. J. H. Huddleson, New York.—p. 1281.
*Arteriosclerosis in Legs and Heart in Diabetes. H. F. Root, Boston.—p. 1287.
Bilateral Vasectomy for Prevention of Epididymitis in Prostatism. M. Meltzer, New York.—p. 1290.

Repair of Hernia with Fascia Suture.—Burdick reports on the results of his use of fascial sutures in 163 herniotomies: one double oblique hernia with direct weakness recurred at the end of two years; one direct hernia recurred at the end of one year; in one double recurrent hernia, one side recurred at the end of fifteen months; one oblique hernia with direct weakness developed an infection on the tenth day with sloughing of most of the fascial sutures; it recurred at the end of nine months. Burdick feels that when dead ox fascia has been properly prepared and cut it will largely supersede autogenous living sutures, but at the present his preference is decidedly for the latter.

Arteriosclerosis and Diabetes.—Root is of the opinion that arteriosclerosis, sometimes premature, and its consequences are becoming the chief cause of death in diabetes. In reviewing the records of 4,676 cases of diabetes, 122 cases of angina pectoris or coronary occlusion were found, their frequency increasing with the duration of diabetes. In the 122 cases of coronary disease, the onset of diabetes definitely preceded that of angina in 106 cases. In fifteen cases the combination of gallstones and angina pectoris was present. In fifty-five autopsies, coronary sclerosis was present in thirty-three cases. Examination of the arteries of diabetic legs suggests that the specific effect of diabetes is to produce an acceleration and extension to the muscular arteries of the fatty intimal change usually found in the elastic arteries, which may occur rapidly. Consideration of the antecedent obesity, of the disturbance of fat metabolism and of the types of diet used in the past tend to support the Aschoff theory of arteriosclerosis as it develops in patients with diabetes. It appears probable that in its early stages the premature arteriosclerosis is reversible and preventable. The diet of the arteriosclerotic patient should contain 100 or more grams of carbohydrate with sufficient insulin to

insure its utilization but with a constant watch for hypoglycemia. In any diabetic patient over 40 years of age, exercises to stimulate the development of collateral circulation in the feet and legs should be begun immediately.

Ohio State M. Journal, Columbus

24: 833-920 (Nov.) 1928

Future of Syphilis. J. H. Stokes, Philadelphia.—p. 853.
*Tularemia. W. M. Simpson, Dayton.—p. 860.
Fetal Heart. W. Brehm, Columbus.—p. 862.
Concomitant Convergent Strabismus. M. P. Motto, Cleveland.—p. 866.
Malaria Treatment of Paresis. D. A. Johnston, Cincinnati.—p. 871.
Near Vision and Illumination in Industry. P. A. Davis, Akron.—p. 875.

Tularemia in Dayton, Ohio.—Four additional cases of tularemia, occurring in Dayton, Ohio, are reported by Simpson. This brings the total of Dayton cases to fifty-three, all discovered since last November. Experience leads Simpson to the conclusion that tularemia is a common disease of man.

South Carolina M. Association Journal, Greenville

24: 223-242 (Oct.) 1928

Arterial Anastomosis. J. McLeod, Florence.—p. 225.
Early Diagnosis of Pulmonary Tuberculosis. E. Cooper, State Park.—p. 228.
Some Problems of Prenatal Care. O. Moore, Charlotte, N. C.—p. 229.
Toxin-Antitoxin. E. E. Epting, Anderson.—p. 231.

Texas State J. Medicine, Fort Worth

24: 385-458 (Oct.) 1928

Résumé of Present Methods of Infant Feeding. J. H. Park, Jr., Houston.—p. 393.
Obscure Mastoid Infection in Infants as Cause of Nutritional and Gastro-Intestinal Disturbances. L. D. Hill, Jr., San Antonio.—p. 397.
Mastoiditis in Infants. R. Moore, Dallas.—p. 400.
Preventive Medicine. C. H. Mayo, Rochester, Minn.—p. 403.
Rôle of Moving Pictures in Medicine, Especially in Gynecology and Obstetrics. J. P. Greenhill, Chicago.—p. 405.
Modern X-Ray Technic for Examination of Accessory Sinuses. J. M. Martin, Dallas.—p. 406.
Types of Osteogenic Sarcomas. V. H. Keiller, Houston.—p. 410.
Diaphragmatic Hernia: Cases. R. G. Giles, Temple.—p. 418.
Salient Points in Treatment of Infantile Paralysis. A. H. Brewster, Boston.—p. 422.
Splenic Anemia: Four Cases. H. F. Connally, Waco.—p. 426.
Pyelitis of Pregnancy and Puerperium. H. L. Kincaid, Houston.—p. 429.
Treatment of Eczema. C. F. Lehmann and E. D. Crutchfield, San Antonio.—p. 433.
Reradiation. R. H. Crockett, San Antonio.—p. 439.

U. S. Veterans' Bur. M. Bull., Washington, D. C.

4: 901-995 (Nov.) 1928

Procedure of Medical Study in U. S. Veterans' Diagnostic Center. L. G. Beardsley, Washington, D. C.—p. 901.
Synonyms in Medicine. E. D. Hatch, Boston.—p. 906.
Hospitalization as Accomplished in U. S. Veterans' Hospital. K. A. Carroll, Tucson, Ariz.—p. 911.
Management of Goiter Risk. G. E. Pfeiffer, Tacoma, Wash.—p. 918.
Paranasal Sinus Diseases and Dry Southwest. D. W. Detwiler, Tucson, Ariz.—p. 929.
Terminal Signs in Pulmonary Tuberculosis. L. D. Riggs, Rutland Heights, Mass.—p. 932.
Study of Leukocytic Variation. R. C. Henderson, Perry Point, Md.—p. 936.
Library Service in Tuberculosis Hospital. E. B. Jones, Tucson, Ariz.—p. 941.
Removal of Odontoma Composite with Two Completely Impacted Central Incisors. P. O. Fallon, Northampton, Mass.—p. 945.
Celluloid-Acetone Solution for Coating Plaster Models. C. Kulsrud, Whipple, Ariz.—p. 947.
Case of Hemolytic Jaundice, Hayem-Widal Type: Splenectomy. C. T. Smith, Boise, Idaho.—p. 948.
Psoriasis. J. G. Cullins, New York—p. 951.
Aneurysm of Abdominal Aorta with Rupture. H. D. Luse, Excelsior Springs, Mo.—p. 954.
Hygiene for Attendants. T. E. Pedersen, Washington, D. C.—p. 972.
Occupational Therapy with Ex-Service Man. E. M. Cates, Aspinwall, Pa.—p. 980.

West Virginia M. Journal, Charleston

24: 529-580 (Nov.) 1928

Arthroplasty of Knee. W. C. Campbell, Memphis, Tenn.—p. 529
Artificial Pneumothorax. W. E. Vest, Huntington.—p. 535.
Nasal Accessory Sinuses. W. Mithoefer, Cincinnati.—p. 538.
Mydriatics and Myotics in Eyeground Examinations. W. S. Shepherd, Charleston.—p. 546.
Experience with Electrocardiograph. L. C. Davis, Fairmont.—p. 548.
Diarrheal Conditions in Child. K. M. Jarrell, Beckley.—p. 552.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 639-682 (Oct. 13) 1928

Volkmann's Ischemic Contracture: Treatment. R. Jones.—p. 639.
Ultraviolet Rays and General Public. W. E. Dixon.—p. 642.
Id. C. B. Heald.—p. 644.
Sterility: Diagnosis and Treatment. A. E. Giles.—p. 647.
*Id.: In Women. S. Forsdike.—p. 648.
Id.: In Male. K. Walker.—p. 652.
Acute Idiopathic Dilatation of Stomach. F. Grundy.—p. 655.
Four Cases of Glioma Retinae in One Family. T. W. Letchworth.—p. 656
Phthisis at Age of 85. D. A. Chamberlain.—p. 656.

Nature of Sterility in Women.—Forsdike believes that the cases usually described as "incompatibility or selective sterility" are really cases of combined relative sterility, in which both the man and the woman are of low fertilizing power. This is a group in which no cause can be found for the sterility; nevertheless, functionally neither the man nor the woman is normal. In the man there is infrequency of coitus and indifference to the act; the semen contains relatively few spermatozoa, and their motility ceases sooner than is the case in a vigorous specimen. These men frequently are of poor physique, the penis is small and somewhat webbed, and the testes are small and not infrequently associated with a varicocele; these conditions have no relationship to venereal disease or other constitutional disease—they are simply indicative of poor specimens of the race. It is impossible to regard these men as sterile, for they have living spermatozoa, though few, and if they were married to healthy women of normal fertilizing power it is probable that conception would occur. Similarly, the woman may be deficient in sex sense. She may be cold and experience no desire for coitus or orgasm; physically she is perhaps just not pleasing—thin, sallow and angular in some cases, or a little too plump, with a growth of hair in unusual parts of the body. The menses are often regularly irregular, scanty and associated with dysmenorrhea. All these minor defects are not sufficient to render these women barren; nevertheless they are undoubtedly sterile when mated to men of the same class.

2: 683-732 (Oct. 20) 1928

Cardiovascular Diseases Since Harvey's Discovery. H. Rolleston.—p. 683.
*Recovery from Symptoms of Intracranial Tumor. C. O. Hawthorne.—p. 689.
*Vitamin A as Anti-Infective Agent. H. N. Green and E. Mellanby.—p. 691.
Low Backache and Sciatica. W. A. Cochrane.—p. 696.
*Perforated Duodenal Ulcer Simulating Acute Appendicitis. K. C. L. Paddle.—p. 699.
Plastic Procedure in Mastoid Operation. W. H. B. Magauran.—p. 699.
Foreign Bodies in Alimentary Tract. C. Gilmour.—p. 700.
Traumatic Rupture of Spleen. C. J. Cellan-Jones.—p. 700.
Varicella Followed by Herpes. J. C. Lyth.—p. 700.
Torsion of Great Omentum. W. Stewart.—p. 701.

Recovery from Intracranial Tumor.—The vagaries of the symptomatology of brain tumor, Hawthorne points out, may be explained by recognizing the fact that for the most part the symptoms associated with intracranial tumor are due less to the mass of the tumor than to circulatory disturbances (congestions, anemias, edemas, hemorrhages, softenings) liable to occur in its neighborhood, and to interferences which the tumor may exercise on the circulation of the cerebrospinal fluid. Grant the absence of these accidents, and cerebral events and symptoms, in spite of the presence of a tumor, may be slight, nonsuggestive, and even nonexistent. With these possibilities admitted, may it not be possible that symptoms, and even pronounced symptoms, of intracranial tumor may disappear, not merely for a more or less brief period, but completely and permanently? Hawthorne reports two cases in which headache, vomiting and allied symptoms indicative of intracranial tumor ceased, the patient, however, remaining blind from optic nerve atrophy. In one case postmortem examination made years after the original illness showed the presence of intracranial tumor. In a case of cerebral syphilis (presumably gumma) all the symptoms, including optic neuritis, disappeared, leaving the patient with normal vision. In four cases—nonsyphilitic—symptoms of intracranial tumor, including optic neuritis, disappeared, leaving the patient with normal vision. Hawthorne

suggests that while it is no doubt generally true that success in operations for intracranial tumor would be promoted by earlier diagnosis, the possibility of the natural subsidence of even pronounced cerebral symptoms ought not be forgotten.

Vitamin A as Anti-Infective Agent.—In an extensive study made by Green and Mellanby of animals brought up on a diet deficient in vitamin A, it is shown that practically all die with some infective or pyogenic lesions. In the control animals receiving vitamin A, these lesions are absent. The presence of vitamin D does not prevent the development of these morbid conditions, and this vitamin seems to be unrelated to resistance to infection. The lesions produced in animals by diets deficient in vitamin A are commonly found in man, and it is desirable that this fact should be borne in mind in the study and treatment of these and other infective and pyogenic conditions.

Perforated Duodenal Ulcer Simulating Acute Appendicitis.—Paddle's patient was suffering from dementia praecox. He was dull and sullen, never speaking voluntarily or taking any interest whatever in his surroundings. He was quite unemployable, and was occasionally impulsive and destructive. He suffered from an intractable form of impetigo, but was otherwise in quite good bodily health. At the time the attack of ulcer occurred he vomited once, just before retiring. His temperature, pulse and respirations were normal, he did not complain of pain, and looked quite well. He got up the next morning, apparently quite well, had breakfast, and vomited soon after. His pulse, temperature and respirations were normal. He was, however, put to bed for safety, though he looked well and did not complain. Five hours later, the pulse rate had risen to 102 and the temperature to 101 F. He then looked ill. He lay absolutely still on his back with his right leg slightly drawn up. His tongue was dry and furred and respirations were about 22, but the abdomen moved fairly well rhythmically. On examination there was some rigidity of the abdominal muscles on both sides, but nothing marked. There was no superficial tenderness, but the patient resented deep palpation of the right iliac fossa, though he did not seem to mind deep palpation of the left side. The heart and lungs were normal; the urine also was normal. He would not reply to questions as to his condition and gave little help. A provisional diagnosis of acute appendicitis was made. A laparotomy was performed. The peritoneum was found to be acutely inflamed. A quantity of dirty-looking nonpurulent fluid exuded. After careful separation of recent adhesions between coils of small intestine, the appendix was isolated and, except for the general peritonitis present, was found to be quite normal. It was removed. The original incision was next prolonged upward for about 2 inches, and the right side of the abdomen was explored. Much of the turbid fluid was flowing downward, and on exposure of the duodenum (second part) a fairly large perforation was found with prolapsed mucous membrane showing. There was little induration round the perforation, which admitted the tip of the middle finger easily. It seemed to be of the nature of an acute duodenal ulcer. A purse-string suture was inserted round the perforation and the ulcer was buried. The patient made an excellent recovery. Ten days later, however, he commenced vomiting during the night, and continued vomiting right up till noon the next day, when the vomited matter became fecal. All food was stopped and the patient was allowed to drink only up to 4 ounces (120 cc.) of the following mixture every two hours: sodium bicarbonate, 1 part; magnesium carbonate, 2 parts; calcium carbonate, 2 parts; bismuth subcarbonate, 4 parts, and water. Vomiting ceased two hours after the taking of the first dose, and from that time onward the patient made an uninterrupted recovery.

Journal of Pathology and Bacteriology, Edinburgh

31: 597-930 (Oct.) 1928

*Gram-Negative Cocci of Nasopharynx: Description of Neisseria Pharyngis. G. S. Wilson and M. M. Smith.—p. 597.

*Tumors of Skin and Mammary Gland Caused by Pyrogenous Products of Cholesterol. E. L. Kennaway and B. Sampson.—p. 609.

Pathogenic Values of Pneumococcal Types: Lesions Produced in Relation to Virulence. J. F. Gaskell—p. 613.

In Vitro Titration of B. Welchii Antitoxin by Its Antihemolytic Power. J. H. Mason and A. T. Glenny.—p. 629.

*Histamine and Infection. G. M. Findlay.—p. 633.

Polycythemia in Rabbit Following Operations Involving Peritoneum. R. H. Mole.—p. 645.

*Endocarditis in Man Associated with Bacillus Para-Influenzae, Rivers, 1922: Case. D. S. Russell and P. Fildes.—p. 651.

Giant Cell Tumors of Bone in Fowl. S. L. Baker.—p. 430.

*Neuroblastoma of Suprarenal Glands. N. B. Capon.—p. 659.

Relation of Agglutination by Specific Serum to Agglutination by Acid. J. A. Arkwright.—p. 665.

Action of Immune Serum on Vaccinia and Virus III in Vitro. C. H. Andrewes.—p. 671.

Capillary Permeability in Acute Uranium Nephritis. C. Whitney.—p. 699.

Production of Hyperplasia in Alveolar Epithelium of Lung of Rabbit. J. S. Young.—p. 705.

Appearance of Doubly Refracting Substances in Formalin-Fixed Rabbit's Tissues. J. B. Duguid and J. Mills.—p. 721.

Oxygen Tension Necessary for Mitosis of Certain Embryonic and Neoplastic Cells. G. P. Wright.—p. 735.

*Relationship Between Bactericidal Power of Normal Guinea-Pig Serum and Complement Activity. J. Gordon and A. Wormall.—p. 753.

Fixation of Complement by B. Typhosus and Normal Guinea-Pig's Serum: Contribution to Study of Natural Antibodies. E. M. Dunlop.—p. 769.

*Chordoma of Vertebral Column. D. F. Cappell.—p. 797.

*Blood Changes After Splenectomy in Splenic Anemia, Purpura Hemorrhagica and Acholuric Jaundice: Platelets and Coagulation. W. H. Evans.—p. 815.

*Relation of Blood Platelets to Thrombosis After Operation and Parturition. R. Y. Dawbarn, F. Earlam and W. H. Evans.—p. 833.

*Types of Tubercle Bacilli in Human Bone and Joint Tuberculosis. A. S. Griffith.—p. 875.

Bacillus Proteus Infections. J. F. Taylor.—p. 897.

Sacral Neuro-Epithelial Tumor of Fetal Origin. W. Susman.—p. 917.

Gram-Negative Cocci in Nasopharynx.—Seventy-eight strains of gram-negative cocci, other than meningococci, found in the nasopharynx, have been studied by Wilson and Smith on a series of mediums, and their colonial appearance, growth in serum broth and fermentation reactions were noted. It is concluded that the cultural and biochemical characters of the gram-negative cocci are subject to such variation that they cannot justifiably be used for purposes of classification in the way in which they have hitherto been employed. It is suggested that instead of dividing them up into a number of so-called species—*catarrhalis, flavus, cinereus, mucosus, siccus*—they should be grouped under the broad term *Neisseria pharyngis*, the characteristics of which are enumerated.

Cholesterol as Cause of Tumors.—Products obtained by Kennaway and Sampson by heating cholesterol to about 800 C. caused epithelioma of the skin in mice and a duct papilloma of the mammary gland in a rabbit.

Histamine and Infection.—It is suggested by Findlay that the well known relationship between injury and the localization of organisms in injured tissue is due to the liberation by injured tissue of histamine or a histamine-like substance which causes dilatation of the capillaries and increased permeability of the capillary endothelium with the result that organisms present in the blood stream are enabled to escape into the surrounding tissues. Evidence in support of this theory is brought forward in experiments with the viruses of fowl-pox, vaccinia and the Rous sarcoma, *Staphylococcus aureus*, streptococcus and pneumococcus.

Endocarditis Caused by Bacillus Para-Influenzae.—A case is described by Russell and Fildes in which a subacute infective endocarditis was excited by a bacillus identified as *B. para-influenzae*, Rivers, 1922. The pathogenicity of the organism has been further established by the demonstration of multiple foci in the myocardium, brain and meninges in which emboli containing collections of these bacilli had lodged in arterioles and capillaries, causing a focal inflammatory reaction and hemorrhage. It is believed that this is the first instance of a causal relationship being demonstrated between this organism and disease in man.

Neuroblastoma of Suprarenals.—Capon's patient was only 6 weeks old. The symptoms presented were of the Pepper syndrome. There was considerable abdominal distention due to the presence of a large tumor consisting, apparently, of both liver and spleen; a V shaped gap could be felt without difficulty in the midline at the inferior border of the tumor. This gap could not be traced up to the superior limit of the abdomen, but at the time it was thought that the extreme abdominal distention prevented this differentiation of liver from spleen. In the differential diagnosis from bilateral cystic kidneys, importance was ascribed to the fact that on the left side it was easily possible to press the tips of the fingers behind the abdominal tumor and to feel its posterior edge. Scattered in the subcutaneous tissues generally, but especially on the infant's back, were numerous hard nodules; the largest was half an inch

across. None of these masses were breaking down; one appeared to be adherent to the overlying skin. There were no visible hemorrhages and jaundice was not present. A clinical diagnosis was not made, but the condition was thought to be diffuse tuberculosis or congenital sarcoma of the liver or renal sarcoma. The liver weighed 18 ounces. The suprarenal glands were enlarged, hemorrhagic and of firm consistency, and contained white nodules, some of which were as large as peas. The tumors were neuroblastomas.

Nature of Hemolytic and Bactericidal Complement.—On the basis of their experimental results, Gordon and Wormall conclude that hemolytic complement and bactericidal complement have a similar constitution and are probably identical. Thus, the bactericidal system investigated by them appears to consist of an immune body (present in normal guinea-pig serum) and complement.

Chordoma of Vertebral Column.—Three cases of chordoma are recorded by Cappell in each of which the growth occupied a very unusual site in the vertebral column, two occurring in the cervical and one in the dorsal region. One of these presents interesting histologic features, which recapitulate in a striking manner the ontogenetic and phylogenetic evolution of the notochord, a brief outline of which is given. There is a short summary of the known examples of chordoma in situations other than the spheno-occipital and sacrococcygeal regions, and a bibliography of the new cases not collected in Stewart's review (1926) is appended.

Platelets After Splenectomy.—Of eleven cases in which the spleen was removed, Evans found that the platelets showed a considerable rise in ten. In one case of purpura hemorrhagica they failed to show any marked rise. In one case of splenic anemia (Rosenthal's thrombocythemic type) the platelets rose to a high level, persistently maintained until the death of the patient from mesenteric thrombosis. The clotting time showed a rough parallelism to the platelet level. The clot retraction seemed much more proportional to the platelet count. After splenectomy there does not seem to be any correlation between the immediate and transient rise of the granular leukocytes and the slower and more persistent rise of the platelets.

Relation of Blood Platelets to Thrombosis.—Dawbarn et al. assert that after operations and childbirth, and especially after cesarean section, the number of platelets in the blood begins to rise about the fourth day, increases to a maximum about the tenth day and thereafter falls slowly to the normal level. A diminution of platelets is associated with an increase, and an excess of platelets with a shortening, of the blood coagulation time. The time relations of clinical thrombosis and embolism are very similar to those of the platelet reaction: They are most frequent about the tenth day after operation or childbirth. The platelets show no change after simple hemorrhage, anesthesia or rest in bed, and no constant variation in sepsis. The platelet reaction is excited by fractures and a similar rise occurs during convalescence from acute lobar pneumonia. It is suggested that the feature which is common to the various stimuli that have been identified is tissue injury and the absorption of breakdown products.

Types of Tubercle Bacilli in Bone and Joint Tuberculosis.—Tubercle bacilli were isolated by Griffith from 598 cases of bone and joint tuberculosis and their type was determined. Bovine bacilli were found in persons of all ages in 20 per cent; in children under 5 years in 33 per cent, and in children between 5 and 10 years in 24 per cent. Griffith does not believe that any patient of 23 years yielded bovine bacilli. Bovine bacilli appear to account for a larger proportion of the cases of tuberculosis of the spine than of other commonly affected bones and joints. Bone and joint tuberculosis may be the result either of respiratory or of alimentary infection.

Lancet, London

2: 849-902 (Oct. 27) 1928

Microbic Dissemination in Schools. S. F. Dudley.—p. 849.
Radiologic Treatment of Cutaneous Basal Cell Carcinoma with Resulting Tissue Changes. J. B. Higgins.—p. 856.
*Exercise Tests in Pulmonary Tuberculosis. A. Cooper and D. Dow.—p. 859.
*Incidence of Traumatic Epilepsy After Gunshot Wound of Head. W. W. Wagstaffe.—p. 861.
True Diabetes Mellitus Complicated by Pregnancy: Case. N. M. Goodman.—p. 862.
*Traumatic Rupture of Spleen in Elderly Man: Case. L. D. Nelson.—p. 863.

Exercise Tests in Pulmonary Tuberculosis.—To test the efficacy of exercise tests, Cooper and Dow devised the following scheme. They took 100 consecutive patients who walked 4 miles morning and afternoon (men) and 3 miles (women), and classified them as satisfactory or unsatisfactory. They then compared the exercise tests of these two groups. That level of exercise was taken as the standard, because to reach it patients had to be in a fairly stable condition, and because by then they were more accustomed to tests. Hence the tests should have been more reliable. The division into satisfactory and unsatisfactory groups was made from the information available within a few days of their admission to the sanatorium. Patients likely to respond well to treatment and in whom the ultimate prognosis seemed good were classed as satisfactory; the others were classified as unsatisfactory. The exercise tests were classified as: good, the pulse rate falls to within ten beats of the resting pulse rate within five minutes of stopping exercise, and there is no rise in temperature, or dyspnea; intermediate, the pulse rate falls to within ten beats of the resting pulse rate within half an hour of stopping exercise, and there is no rise in temperature or marked dyspnea, and bad, the pulse rate does not fall to within ten beats of the resting pulse rate within half an hour, and there may be a rise in temperature and dyspnea.

Incidence of Traumatic Epilepsy After Gunshot Wound of Head.—The total number of cases analyzed by Wagstaffe was 820. The patients came under his care in France during the years 1916 and 1918. Of those traced there were 340 alive, and 245 dead. Of the 245 dead, 208 died in France within two months of being wounded. The majority of the patients were kept in hospitals in France under observation for two months or less, and a few patients longer, until their condition was regarded as completely stable. The patients considered here have been followed up by examination of the records of the ministry of pensions. These records represent a history of the patients' careers up to eleven years from the time at which they were wounded. The total number who showed definite traumatic epilepsy were: alive, thirty-one; dead, six. In addition to these, there were twenty-three alive and five dead who had complained of fits, but since the medical boards did not record them as having true traumatic epilepsy, they have therefore been omitted. The vast majority with traumatic epilepsy were patients in whom there were penetrating wounds of the head, and the percentage of traumatic epilepsy in these was as high as 18. In all the rest the incidence was only 2 per cent, and the incidence in the whole series is just under 10 per cent. It is justifiable to conclude that the incidence of traumatic epilepsy is definitely associated with the severity of the primary wound. The five patients with injury in the frontal region who are still alive show marked mental deterioration. Most of the cases of parietal injury, and the three cases of occipital injury show marked organic lesions. In the latter a foreign body had traversed the greater part of the cerebrum and was lying in the frontal region, causing a marked paralytic lesion. Of 155 patients with penetrating wounds, fifty-nine showed severe organic complications, while ninety-six did not show any severe complications. Of the fifty-nine with organic complications, sixteen (27 per cent) had fits. Of the ninety-six without organic complications twelve—i. e., 12.5 per cent—had fits. It is obvious, therefore, that fits are more common in patients who have severe organic lesions. Traumatic epilepsy may come on at almost any time after a gunshot wound of the head. In this series the variation is from two months to seven and a half years. Traumatic epilepsy appears to be much more common in those patients who show transient jacksonian fits within a few days of the injury. Traumatic epilepsy is somewhat more common in those in whom a metallic fragment remains in the brain. The mortality in patients who have developed traumatic epilepsy is rather higher than in other patients with gunshot wounds of the head.

Traumatic Rupture of Spleen.—Nelson's patient complained of injuries sustained on being thrown against a wall by a cow. He had pain on the left side of the thorax and down the left side of the abdomen to the iliac crest. Fracture of the

eighth and ninth ribs was diagnosed and treated. The abdomen did not show any bruising or distention, and there were no signs of any internal injury. There was no free fluid. He passed normal urine without difficulty, and his general condition was good for thirteen hours, when the pulse rate began to rise and at the end of an hour was 120. His respirations had become deepened, but were not definitely sighing. He was blanched and restless. He complained of diffuse pain and tenderness in the left side of the abdomen, most marked over the splenic area, and there was now dulness in both flanks, extending medially to the midclavicular line. The provisional diagnosis of ruptured spleen was made and verified at the operation. Splenectomy was performed. The spleen was found to have two injuries: a small tear near the hilum anteriorly and a rupture in the organ itself on the costal surface above the notch. The blood had stripped the capsule off the organ for a considerable extent, but had not clotted.

Practitioner, London

121: 205-272 (Oct.) 1928

Mosquito Control: General or Special? R. Ross.—p. 205.
Homeopathy: System of Therapeutics. J. Weir.—p. 213.
Gastric Infection Secondary to Oral Sepsis and Systemic Disease. W. K. Anderson.—p. 224.
Diphtheria: Present Position. G. W. J. Bousfield.—p. 237.
Fowler Posture and Tube Drainage. R. E. Millar and G. Robertson. —p. 245.
Asthma: Pathogenesis in Regard to Treatment. J. André.—p. 252.
Acute Acidemia in Childhood. J. Rey.—p. 260.

Archives des Maladies de l'App. Digestif, etc., Paris

18: 841-960 (Oct.) 1928

*Peptic Ulcer and Physique. C. B. Udaondo.—p. 841.
Action of Drugs on Metabolism of Calcium and Magnesium. M. Balta-ceano.—p. 851.
*Barium Sulphate Treatment of Peptic Ulcer. D. Simici, C. Mustata and Petrovici.—p. 871.

Peptic Ulcer and Physique.—For several years Udaondo has paid particular attention to the external appearance of his gastric ulcer patients; from these observations he concludes that persons with gastric ulcer do not conform to any characteristic morphologic type.

Treatment of Ulcer and Hypersthenic Syndromes of Stomach with Barium Sulphate.—From results obtained in the treatment of fourteen cases of gastric and duodenal ulcer, five cases of chronic gastritis and fourteen cases of hypersthenic dypepsia with pronounced hyperacidity, Simici et al. conclude that: Barium sulphate has a favorable action on the anatomic lesions and on the subjective and objective phenomena of the hypersthenic syndromes of the stomach (ulcer, gastritis, and secretory and motor hypersthenic dyspepsias). When administered by mouth for several successive weeks in daily doses of 60 Gm. divided into four equal doses, before breakfast, one hour before lunch and dinner, and at night, it may result in the cicatrization of the ulcer and the alleviation or even the complete disappearance of the characteristic subjective and objective phenomena of this lesion. The same favorable changes may be obtained in gastritis and in the secretory and motor hypersthenic dyspepsias. These favorable subjective changes produced by the action of barium sulphate are not accompanied in every case by a parallel lowering of the acid and pepsin values of the gastric juice. The latter is observed in only a small number of cases. In the majority of cases these values remain unchanged or even increase during the treatment. In spite of this, barium sulphate may be used with good results in the treatment of the organic and the inorganic hypersthenic syndromes of the stomach.

Bulletin de la Soc. d'Obst. et de Gynéc., Paris

17: 691-816 (Oct.) 1928. Partial Index

Fibroid Tumors of Uterus and Cysts of Both Ovaries. Roche.—p. 691.
Ovarian Cyst and Pyosalpinx. Guyot and J. Villar.—p. 692.
*Meningeal Hemorrhage in New-Born Infants. Andérodias and Dervillée. —p. 693.
Treatment of Meningeal Hemorrhage in New-Born Infants. M. Rivière. —p. 695.
Management of Prolonged Pregnancy. F. Faugère.—p. 696.
Retroplacental Hemorrhage. M. Rivière.—p. 697.
Central Placenta Praevia. Gautret and Veyssière.—p. 701.
Iodized Oil in Diagnosis of Malformation of Uterus. Péry.—p. 704.
Pelvic Deformity Due to Dislocated Hips. Péry.—p. 705.
Tuberculosis of Body of Uterus Limited to Myometrium. G. Jeanneney. —p. 706.
Total Hysterectomy for Tuberculosis of Body of Uterus. Bardon and André.—p. 709.
Hematosalpinx Twisted About Pedicle of Ovarian Cyst. Chenut and Mahon.—p. 710.
Appendicitis During Pregnancy. Péry, Rabère and F. Leuret.—p. 711.
Suppurative Cyst of Ovary. Chenut and Mahon.—p. 713.
Radium Treatment of Uterine Neoplasms. Guyot.—p. 714.

Meningeal Hemorrhage in the New-Born Infant Following Spontaneous Labor.—Andérodias and Dervillée report three cases of cerebral hemorrhage in infants whose mothers had contracted pelves but who, nevertheless, were born without the use of forceps. In addition to the cerebral hemorrhages, one of the infants had numerous hemorrhagic foci in various abdominal viscera. The authors conclude that obstetric manipulations cannot always be blamed for cerebral hemorrhage in new-born infants and that there is frequently a discrepancy between the purely meningeal symptomatology of these forms of hemorrhage and the extent of the lesions found at necropsy (multiple visceral hemorrhages).

Paris Médical

2: 161-172 (Aug. 25) 1928

*Undulant Fever. X. Cazalas.—p. 161.
*Tuberculous Pyothorax. Apostolidès and Hadjissarantos.—p. 166.
Indications for Use of Spermatic Extract. J. Vinchon.—p. 169.

Treatment of Undulant Fever.—Cazalas reports a case of undulant fever which for eight months resisted all the commonly used forms of treatment. The biologic diagnosis was based on a positive agglutination test, a positive hemoculture (incubation period of twenty-six days) and a positive intradermal test. The patient was cured in a few days by intradermal and intramuscular injections of the filtrate from a fifteen day old bouillon culture of *Bacterium melitensis* (Burnet's "melitin") followed by subcutaneous injections of antimelitococcic vaccine.

Treatment of Tuberculous Pyothorax by Means of Intrathoracic Lavage.—In a large number of cases of tuberculous pyothorax, Apostolidès and Hadjissarantos noted that, when the patients were not treated or were treated by repeated evacuating punctures, they developed either generalized tuberculosis or the cachexia of tuberculous suppurations; on the other hand, when an operation was performed to give permanent drainage of the pus, the fistulization continued endlessly or secondary infection occurred. They therefore tried methodical and repeated lavage of the pleural cavity with the following slightly antiseptic sterilized solution, which produces neither local nor general irritation: 1 Gm. of metallic iodine, 1.5 Gm. of potassium iodide, and 5,000 cc. of water. The pus is first evacuated by a paracentesis in one of the intercostal spaces near the bottom of the collection of pus; the tepid antiseptic solution is then introduced through one of the intercostal spaces near the top of the collection of pus. By the escape of the solution through the trocar, which serves for the evacuation of the pus, the thoracic cavity is irrigated. The authors emphasize the point that the lavage should be stopped when the return solution becomes absolutely clear. The lavage is repeated at intervals whose length depends on the nature and quantity of the effusion. With this form of treatment, the pus, which at first resembles particles of cheese, becomes more viscid and finally is replaced by a serofibrinous effusion, the resorption of which results in a dry cavity. This local effect is accompanied by marked improvement in the general condition of the patient.

2: 301-316 (Oct. 13) 1928

Ectomesodermic Spirochetosis. H. Jausion.—p. 301.
*Persistent Hyperglycemia in Diabetes Without Glycosuria. M. Garnier and P. Chêne.—p. 308.
*Calcium Chloride in Hemorrhage. F. Bourgeois and S. de Sèze.—p. 311.
Value of Purified and Nonpurified Serum. O. Ornstein.—p. 313.

Persistent Hyperglycemia in Cases of Diabetes Without Glycosuria.—According to Garnier and Chêne, in diabetes the hyperglycemia may persist after the glycosuria has disappeared. In the study of diabetes, therefore, the amount of sugar in the blood is at least as important as the amount of sugar in the urine. Nevertheless, it seems that this idea has not gained the clinical recognition that it deserves. Too frequently one contents oneself with a single examination of the urine to affirm or deny the presence of diabetes; in some cases,

sugar may disappear from the urine and the previously diagnosed diabetes then seems cured, whereas the persistent hyperglycemia proves that the process is still active. Certain accidents which one is accustomed to see associated with diabetes are thus explained, whereas if one had neglected this examination, they could not be ascribed to their true cause. To illustrate this fact, the author gives reports of four cases of retinitis without glycosuria but with marked hyperglycemia; in one of the patients no sugar was found in the urine but 3.13 Gm. of sugar was found in the blood. In this patient the hyperglycemia without glycosuria has persisted for seventeen months. In only one of the cases did the glycosuria disappear following the use of insulin; in the other cases it disappeared under the influence of a more or less regularly followed diet. The question may be raised as to whether this is not the result of the natural evolution of the diabetes in certain cases, the glycosuria disappearing when the hyperglycemia becomes fixed at a figure just necessary to permit the tissues to consume the sugar. The hyperglycemia would therefore be a compensatory phenomenon destined to prevent the acidosis which characterizes the carbohydrate deficit. In only one of the four cases did the urine contain ketone bodies and in this case only traces of them were present. The absence of glycosuria cannot be attributed to faulty permeability of the kidney since in all the cases the nitrogen content of the blood was normal; the urine, moreover, usually did not contain albumin.

Calcium Chloride in the Treatment of Various Forms of Hemorrhage and of Several Blood Diseases.—Bourgeois and de Sèze recommend the peroral administration of calcium chloride, curatively, in hematemesis, gastro-intestinal hemorrhage, melena neonatorum, hemoptysis, metrorrhagia, hematuria, dental hemorrhages and epistaxis, and prophylactically to prevent hemorrhage in surgical operations, particularly the removal of tonsils and adenoids, and in labor. It is also recommended in the treatment of hemophilia, purpura, paroxysmal hemoglobinuria, hemorrhagic infections (smallpox and scarlet fever), hemorrhagic typhoid and blackwater fever. The authors emphasize the very great importance of correct dosage in calcium chloride therapy; medium doses favor the coagulation of the blood, but too large doses of the salt result in a considerable prolongation of the coagulation time. The daily dose of the salt should not exceed 5 Gm.

Revue Française de Pédiatrie, Paris

4: 419-558 (Aug.) 1928

Urinary Acidity in Infants. R. Debré, R. Goiffon and S. Yoshimatsu.—p. 419.
Treatment of Dyspepsia in Infants. G. Dienst.—p. 436.
*Irradiated Ergosterol in Rickets and Tetany. P. Rohmer, P. Woringer and Anderssen.—p. 449.
*Calcium and Phosphate Contents of Blood in Tuberculosis. G. Popoviciu.—p. 460.
*Kefir Treatment of Dyspepsia in Infants. L. Bytch.—p. 476.
*Physiologic Xanthochromia of Cerebrospinal Fluid of Infants. J. P. Garrahan.—p. 483.

Treatment of Rickets and Tetany with Irradiated Ergosterol.—From results obtained in the treatment of three cases of rickets and fifteen cases of rickets associated with spasmophilia, Rohmer et al. conclude that irradiated ergosterol has about the same value in the treatment of rickets and spasmophilia as heliotherapy or actinotherapy. However, although the bone lesions and nervous disturbances disappear with about the same rapidity following both kinds of treatment, the authors believe that the muscular flaccidity and the susceptibility to infection are more quickly corrected by irradiated ergosterol than by ultraviolet therapy. Only physiologically controlled preparations should be used.

Calcium and Phosphate Contents of the Blood in Bone Tuberculosis in Infants.—According to Popoviciu: 1. In bone tuberculosis in infants the determination of the calcium-phosphorus product and of the calcium-phosphorus ratio, using the calcium and phosphorus contents of the blood, gives results comparable to those obtained in moderate cases of rickets or in other related pathologic conditions in which there is likewise a decrease in these figures, particularly of the inorganic phosphorus of the serum. 2. Uultraviolet rays increase especially the phosphorus content of the blood in bone tuberculosis and in rickets in children. 3. The conception of demineralization in tuberculosis and its cure by the administration of minerals thus becomes more rational.

Value of Kefir in Treatment of Dyspepsia and Hypothrepsia in Infants.—In the treatment of these conditions Bytch has obtained even better results with kefir than with buttermilk. Exclusive kefir feeding should not be continued for more than two or three weeks, however, because kefir has a lower calory content than milk.

Physiologic Xanthochromia of Cerebrospinal Fluid in New-Born Infants.—From the study of 196 specimens of cerebrospinal fluid from 135 new-born infants, Garrahan concludes that xanthochromia of the cerebrospinal fluid is physiologic in the new-born infant. Only twenty out of 177 specimens of cerebrospinal fluid from infants ranging in age from 1 to 10 days were colorless. The intensity of the yellow coloration increases, as a rule, during the first few days and begins to diminish in the second week. The presence of even large numbers of erythrocytes in the cerebrospinal fluid of new-born infants is normal. The effect of birth trauma on the production of xanthochromia is not clear. The yellow color of the cerebrospinal fluid of new-born infants appears to be due to bilirubin. Van den Bergh's indirect test almost always gives a positive result and all new-born infants with icterus have a yellow cerebrospinal fluid. Little is known concerning the genesis of the xanthochromia of the cerebrospinal fluid of new-born infants. It is not pathognomonic of meningeal hemorrhage.

Schweizerische medizinische Wochenschrift, Basel

58: 957-980 (Sept. 29) 1928

"Infraclavicular Early Infiltrate." O. Amrein.—p. 957.
*Lipoid Treatment of Pulmonary Tuberculosis. J. E. Wolf.—p. 959.
Hemorrhage in Cerebellum and Pons in Calcification of Posterior Cerebellar Artery, with Clinical Picture of Acute Arteriosclerosis. K. M. Walthard.—p. 963.
Influence of Climatic Factors on Pain. E. Zueblin.—p. 966. C'en.
Treatment of Lacunar Tonsillitis. C. Schneiter.—p. 973.

Lipoid Treatment of Pulmonary Tuberculosis.—Twenty-eight patients with active pulmonary tuberculosis were treated by Wolf with a nonspecific lipoid preparation, given parenterally. The disease was in all the cases in a chronic tertiary stage and of fibrous character with tendency to cirrhosis. The treatment extended over from three to four months, on the average. Thirteen patients were cured, fourteen were improved and one was not influenced. The dose must be carefully regulated, since with too large doses harm is done. The sputum, temperature, sedimentation reaction and leukocyte picture were favorably influenced in the majority of the cases. On auscultation and in the roentgenogram an increased tendency to fibrous cicatrization was determined. In addition to their important rôle in both specific and nonspecific immunity in tuberculosis, lipoid bodies bind toxins, destroy bacteria, stimulate fermentative processes, favor deposition of protein and increase blood lipoid.

Riforma Medica, Naples

44: 679-713 (June 4) 1928

*Colliquative Amebic Hepatitis with Opening in Pleura and Pericardium. G. Scuderi.—p. 683.
Metrosalpingography, New Means of Radiologic Diagnosis. A. D'Istria.—p. 687.
Acute Ataxia in Young Children. L. Babonneix.—p. 694.
Cancers of Occupational Origin. V. M. Palmieri.—p. 697.

Colliquative Amebic Hepatitis.—Scuderi reports a case of colliquative amebic hepatitis, with reaction on the pericardium and formation of an opening in the pleura and also in the pericardium. He emphasizes that amebic hepatitis of the left lobe of the liver may take the form, in the beginning, of a gastric or duodenal ulcerative lesion. The ordinary symptoms pointed out in the literature as pathognomonic for the localization of a colliquative hepatitis in the left lobe may be lacking and the lesion may run its course with the symptom complex of a collection in the right lobe. The pericardiac reaction is possibly the best indication of a localization in the left lobe of the liver. Colliquative hepatic lesions of the left lobe may produce an opening in the right pleura and be associated with reactive exudative pleuritis. Occasionally, the opening of an hepatic collection into the pleura is followed by an opening into the pericardiac cavity. Exploratory puncture of the liver will not, in all cases, reveal the presence of

an hepatic collection—a negative observation does not invalidate the clinical diagnosis. Even thoracotomy and exploratory laparotomy do not always bring to light an hepatic collection of the left lobe.

44: 747-809 (June 18) 1928

Cholecystitis: Diseases That Simulate It and Diseases Causing Complications. D. Giordano.—p. 749.
*Plasmochin in the Treatment of Malaria. M. Dalla Palma.—p. 753.
Specific and Nonspecific Prophylaxis of Measles. G. Salvioli.—p. 756.
Clinical Considerations on Symptoms of Carcinoma of the Pancreas. M. Roch.—p. 760.
Use of Phenol-Alcohol as Antigen in the Wassermann Test. V. Giudiceandrea.—p. 763.

Plasmochin in the Treatment of Malaria.—Dalla Palma discusses the two main harmful effects of plasmochin: cyanosis and abdominal pains. The abdominal pains are slight; they usually extend over the whole abdomen but are sometimes localized in the epigastrium or the left hypochondrium; at times they are accompanied by digestive disturbances. They often cease during the course of the treatment, and they do not leave bad effects. Cyanosis of a severe type occurs in from 2 to 7 per cent of the cases. The face and the extremities assume a dark livid color and the mucosae of the lips and mouth take on a peculiar grayish blue tint. There is little or no dyspnea and no involvement of the nervous system, except for a marked feeling of asthenia. This cyanosis may be due to toxic action on the blood and the production of methemoglobin. It may cause morphologic changes in the erythrocytes with formation of Ehrlich-Heinz bodies. There may be other, predisposing causes to explain the cyanosis and more particularly the Ehrlich-Heinz bodies. Plasmochin has a cumulative action on the organism, for which reason Mühlens advises fractioned doses.

Archiv für Psychiatrie und Nervenkrankheiten, Berlin

84: 715-812 (Sept. 5) 1928

Origin of Cerebellar Cysts. A. von Szigethy.—p. 715.
Mental Disease as Grounds for Divorce. W. Frensdorf.—p. 726.
Psychology of War Accidents. A. Kluge.—p. 739.
Irritative Syndrome of Architectonic Field "19" in Cortical Epilepsy. E. Wenderowić.—p. 759.
*Psychoses Following Intestinal Diseases. K. A. Schwarz.—p. 768.

Psychoses Following Intestinal Diseases.—Schwarz gives an extensive review of the literature on this subject and describes a case of amentia psychosis with catatonic symptoms which developed as a result of pulmonary and intestinal tuberculosis in a man, aged 48. Psychically he had always been normal except for an attack of "nervous heart trouble" at the age of 35. When 19 he had a pulmonary disease and when he was 42 his intestinal trouble began. During the time he was observed, he suffered from an acute psychosis—hallucinations, confusion, thoughts of death. His treatment consisted of continuous baths, sedatives, absolute rest and a rich supply of food. Ten days of treatment were followed by four weeks of psychic improvement, then relapse. He died of intercurrent pleurisy and pneumonia five months after he had been taken into the clinic.

Archiv für Verdauungs-Krankheiten, Berlin

44: 1-168 (Aug.) 1928

Intestinal Neuroses. M. Gubergritz.—p. 1.
Digestion of Fat in Closed Plant Cells. W. Heupke and A. V. Marx.—p. 23.
*Albuminuric Diabetes. A. A. Epstein.—p. 31.
*Stomach Examination by Chromoscopy and Determination of Acidity Curves. R. A. Luria and E. R. Mogilewsky.—p. 55.
*Witte's Peptone in Chronic Diarrhea. L. Justmann.—p. 80.
Treatment of Psychoneuroses of Digestive Tract. R. Schindler.—p. 89.
Relative and Absolute Acidity of Contents of Stomach, and Acidity Coefficient of Gastric Juice. N. Zwonitzky and W. Issajew.—p. 106.
*Cocoa as Source of Protein. H. Pulfer.—p. 114.
*Effect of Fresh Fruits and Berries on Gastric Secretion. H. J. Grünberg.—p. 123.
Liquid Petrolatum Preparations as Laxatives. H. Oppenheim.—p. 133.

Albuminuric Diabetes: Its Cause and Treatment.—The primary cause of albuminuric diabetes is a disturbance of the protein metabolism. Changes in the blood protein, edema, lipoidemia, and reduced basal metabolism and other evidence of tissue hunger result. The object of the treatment is threefold: to compensate for the protein loss in the blood plasma, to cause the tissue to consume protein and at the same time to reduce the lipoidemia, and to restore the normal metabolism. Thyroidin and thyroxin stimulate protein metabolism; diet takes care of protein replacement. Directions are given for the treatment of the complications that may arise.

Value of Combination Method of Stomach Examination by Chromoscopy and Determination of Acidity Curves.—This method makes possible a more complete knowledge of the secretory and excretory functions of the stomach independent of its motor function. It also makes possible the diagnosis of gastritis and its differentiation from myxorrhea. It differentiates benign from malignant forms of achylia and isolates cases of hypersecretion. The method will find application in the study of the chloride metabolism in the organism.

Recommendation of Witte's Peptone for Chronic Diarrhea.—Peptone affects the liver, which in turn affects the activity of the digestive canal. This remedy is of value in inflammation of intestinal segments where digestion still goes on; in the lower intestinal segments where there are no food remains, it is not effective. For slight attacks of diarrhea peptone should be given by mouth three times a day before meals; for severe cases it should be administered intramuscularly.

Cocoa and Cocoa Products as Valuable Sources of Protein.—It is possible to replace protein nitrogen in dogs and in man by cocoa and cocoa products. They not only serve as substitutes for meat protein, but in some animals they may even decrease the protein requirement.

Influence of Fresh Fruits and Berries on the Secretory Activity of the Stomach.—Grünberg divides fruits into two groups: those which stimulate gastric secretion, and those which suppress it. To the first group belong melons, blue grapes, pears, apples, cherries and blue plums; to the second, green grapes, apricots, gooseberries, wild cherries, yellow plums and raspberries. With fruits of the first group gastric juice is secreted after a short latent period and shows a high acidity, a small amount of ferments and no mucus. Secretion with fruits of the second group begins after a longer latent period and shows a low acidity and a large amount of ferments and mucus.

Jahrbuch für Kinderheilkunde, Berlin

121: 1-110 (Aug.) 1928

Acidosis from Anoxemia and Anoxemia from Acidosis. E. Schiff and M. Fukuyama.—p. 1.
Gas Interchange in Rest After Work of Ill and Healthy Children. H. Bruch.—p. 7.
*Congenital Tracheal Stenosis. E. Gabriel and F. Feyrter.—p. 29.
Bodily and Mental Development of Prematurely Born Children. S. Levy.—p. 41.
Colloid Biologic Studies of Thrush Fungus. F. V. von Hahn and H. Junker.—p. 85.

Congenital Tracheal Stenosis in a Four and One-Half Year Old Child.—Congenital tracheal stenosis is a rare disease; in this case it was characterized by stricture of the trachea and malformation of its cartilaginous frame. Operation was necessary, and death followed.

Klinische Wochenschrift, Berlin

7: 1893-1940 (Sept 30) 1928. Partial Index

Origin and Demonstration of Urinary Cylinders H. von Hoesslin.—p. 1893.
Syphilitic Blood Change. F. Klopstock.—p. 1896.
*Treatment of Infections by Heat. B. Mendel.—p. 1898.
Brain Antibodies and Metasyphilis. F. Georgi.—p. 1904.
*Treatment of Empyema in Childhood. S. Ederer.—p. 1906.
*Intensive Ultraviolet Irradiation of Lupus Vulgaris. W. Jadassohn.—p. 1907.
Relations Between Coagulation Time and Sedimentation Time of Blood After Parenteral Administration of Activating Substances. J. Knosp.—p 1909.
New Simple Test of Heart Muscle Function. A. Böttner.—p. 1911.
Müller's Clumping Reaction. R. Freund.—p. 1912.
Action of Various Forms of Iron on Regeneration of Blood Pigment. G. Stieger.—p. 1914.
Bile Pigment Content of Local Hemorrhages. Kurishita.—p. 1914.
Eczema Following Bath Containing Turpentine. H. Borchardt.—p. 1915.
So-Called Tabes Psychoses. A. Bostroem.—p. 1915.

Treatment of Infections by Heat.—Heat therapy differs from therapeutic fever in that in the former the temperature is raised to a definite point and maintained there for a definite length of time. It is based on the fact, demonstrated in animal experiments, that parasitically living cells are more sensitive

to heat than the normal cells of the body. The temperature effective for the different parasitic cells (cancer cells and bacteria) and the time during which it should be maintained may be determined by experiments in vitro and in animals. The therapy is thus specific. This is Mendel's theory, and in the present article he deals with streptococcus infection. He found that the usual lethal dose was tolerated by rabbits when the streptococci had been exposed to certain temperatures for certain lengths of times before injection. Even ten times the lethal dose did not kill regularly. Not until 100 times the lethal dose was used did almost all the animals die. The temperature and the period of exposure varied from 40.5 C. for twenty-four hours to 48.0 C. for fifteen minutes. Further experiments showed that the heat acted by decreasing the virulence of the streptococci rather than by killing them or by inhibiting their increase. For the animal experiments, white rats were used. After peritoneal injection of a streptococcus culture, they were put into a well ventilated incubator, where their body temperature was brought up to 41.5 C. and kept at this height for eight hours, the length of time indicated by the experiments in vitro. All the heated animals survived, while the controls died. From six to eight days after the experiment they were killed, and attempts were made to culture the streptococcus from the heart blood, spleen, kidney and liver. These were unsuccessful in all cases. Mendel recalls the fact that for rabbits the lethal dose of streptococci per kilogram of body weight is about 100,000 times as great as for mice. Experiments showed that this relative insensitiveness of the rabbit for streptococcus infection is not due either to the bactericidal power of normal rabbit blood or to protective materials developed in the rabbit blood by the infection. He found, on the other hand, that, unlike the mouse, the rabbit reacts with fever to the introduction of bacteria into the organism. If 0.2 cc. of a twenty-four hour old whole culture of streptococcus is injected into the vein of the ear in a rabbit weighing 700 or 800 Gm., the temperature rises in the course of one hour to about 41 C. and remains there for days. If the animal is killed eight or ten days later the blood and organs are found sterile. If, however, the temperature is kept down by febrifuges, a dose corresponding to the lethal dose for the mouse proves fatal in from twenty-four to thirty-six hours. Mendel proposes the use of heat treatment on this basis in streptococcus infections in man. It can, he says, easily be carried out in the treatment of erysipelas or panaritium. He found that the skin can stand moving dry air at a temperature of from 50 to 52 C. for thirty minutes. At a temperature of 50 C. on the surface of the skin, a temperature of from 47 to 48 C. will be present 2 or 3 mm. below the surface. For panaritium he suggests immersion of the ligated finger for an hour in a water bath at 45 or 46 C., local anesthesia being used. The treatment as applied to streptococcus sepsis will shortly be reported on.

Treatment of Empyema in Childhood.—Open treatment is indicated only as a last resort, in Ederer's opinion. The mediastinum is much more delicate in children than in adults, and the mortality from thoracotomy and rib resection is 75 per cent in infancy and 30 per cent in early childhood. Puncture alone is not, however, sufficient; first, because it does not completely empty the pleural space; secondly, because early adhesion and the formation of isolated pus pockets are not prevented. A vicious circle is set up by the acidity of the pus, which acts as an irritant and increases the inflammation. To combat this he irrigates with an alkaline phosphate buffer solution, the buffering capacity of which is large enough to bind the acid inflammatory products for twenty-four hours and to keep the inflamed pleura in a neutral milieu. An isotonic solution of a mixture of sodium acid phosphate and sodium phosphate gave the best results. The p_H of the buffer was between 7.5 and 8, according to the p_H of the pus. It must not exceed these limits. It must be borne in mind that the granulation tissue in the subacute stage is much more sensitive to variations in the p_H than is the acutely inflamed pleural tissue. A further advantage of the alkaline irrigation fluid is that it dissolves the autolytic products of pus. To prevent adhesion of the pleural leaves, he always, in the acute stage, follows the irrigation by refilling the cavity with the buffer solution. The volume of the solution used in the refilling must not be more than half that of the pus removed. In the subacute stage the refilling is usually unnecessary and the irrigations should be made not daily but once in from two to five days, till puncture no longer yields exudate.

Intensive Ultraviolet Irradiation of Lupus Vulgaris.—Jadassohn's method consists in the application of very large doses of rays, repeated before the disappearance of the reaction (vesicle and crust formation). The dose for the later irradiations is in most cases increased. The reactions are allowed to develop without any antiphlogistic measures. The crusts and coverings of the vesicles are removed with ointment or pincers before the following irradiation. The ulcerations have always healed well in his experience. The treatment is not painless but has given good results in cases resistant to other methods. Twenty patients have been treated by this method in the last two years and persons who had been excluded by their appearance from social life or gainful occupations have been restored to normal life. He considers it too early to speak of the permanence of the cures.

Medizinische Klinik, Berlin

24: 1501-1536 (Sept. 28) 1928

Internal Medicine and Chemistry. H. Horsters.—p. 1501.
New Exact Method for Demonstrating Injury from Lead (Chronaxia). F. H. Lewy and S. Weiss.—p. 1505.
*Rectal Application of Colloidal Silver in Septic Diseases. E. Moos.—p. 1507.
Results with Dick's Preventive Inoculation. T. Gruschka and O. Schubert.—p. 1507.
Photography of Interior of Stomach. H. Elsner.—p. 1511.
*Treatment of Skin Diseases Without Gauze Dressings. A. Strauss.—p. 1512.
Serologic Diagnosis of Syphilis. G. Blumenthal.—p. 1514.
Cell Lipoid and Cell Respiration. E. Sehrt.—p. 1517. C'cn.
Late Results of Paralysis of Peroneus. E. Rubensohn.—p. 1522.

Rectal Application of Colloidal Silver in Septic Diseases.—In thirteen cases of staphylococcus sepsis, Moos saw good results from 5 per cent collargol solution given as enemas in quantities of from 25 to 100 cc.

Treatment of Skin Diseases Without Gauze Dressings.—For a covering to the skin to avoid the necessity of gauze dressings, Strauss uses liquid petrolatum 4 parts, glycerin 8 parts, starch, zinc oxide and distilled water 100 parts each. To this formula, as a base, he makes additions to suit the individual case. The consistency is that of ointment, and it has the advantage that it does not become brittle after it has been on the skin for a while. As a water-soluble skin varnish he recommends: tragacanth 3 parts, zinc oxide 10 parts, an ointment base composed of the oxycholesterol of anhydrous wool fat and paraffin 100 parts, and distilled water 100 parts. When well rubbed in, this gives a smooth, elastic, scarcely visible covering. Small quantities of eosin and sulphonated bitumen may be added to tint the mixture for cosmetic purposes. If a cooling action is desired, a 2 per cent solution of aluminum acetate may be used instead of water in either of these formulas. For deeper action the following basic formula may be used: starch 10 parts, zinc oxide 5 parts, beeswax 1 part, the ointment base mentioned in the first formula 40 parts, and distilled water (or 2 per cent solution of aluminum acetate) 100 parts. This is an excellent preventive against tissue eczema and similar conditions.

Medizinische Welt, Berlin

2: 1413-1448 (Sept. 22) 1928. Partial Index

Treatment of Carcinoma of Cervix Uteri. W. Lahm.—p. 1413.
*Can Syphilis be Transmitted by Lip-Sticks? A. Buschke and A. Joseph.—p. 1417.
Prenatal Prevention of Syphilis in Child. E. Philipp.—p. 1421.
*Postclimacteric Hemorrhage. A. Mandelstamm.—p. 1424.
*Dangers of Curettage of Ambulatory Patients. M. Flesch.—p. 1426.
Causes and Treatment of Sterility in Women. E. Engel.—p. 1428.

Can Syphilis Be Transmitted by Lip-Sticks?—A typical chancre appeared on the upper lip of a girl who five weeks before had borrowed a lip-stick from a friend. To find out whether or not infection from lip-sticks is possible, Buschke and Joseph put some chancre serum on one and kept it at room temperature; moistening it with physiologic solution of sodium chloride after twenty-four hours, he found the spirochetes motionless. Cultures of spirochetes dried for two hours still showed motile spirochetes. The spirochetes on lip-sticks are protected from the harmful effect of light. There is a possibility of infection, since the mucous membrane of the lip may have erosions into which inoculation with the spirochetes may take place.

Causes and Treatment of Hemorrhage After the Menopause.—In cases of hemorrhage after the menopause one should always think of malignant disease of the ovaries if the vagina and uterus are normal. In the author's collection of forty-two cases of postclimacteric hemorrhage there were nine cases of malignant tumors of the uterus (eight carcinomas, one sarcoma) and two cases of carcinoma of the ovary. In cases of cancer of the ovary the tumor together with the uterus should be removed even when ascites is present.

Dangers of Curettage Unless Patient is in Hospital.—Curettage makes surface wounds which are not visible to the eye but which are none the less serious. It requires enlargement of the cervical canal, which may result in its rupture. It makes possible the penetration of infectious material into the abdominal cavity through the fallopian tubes; it may even result in perforation of the wall of the uterus. It is therefore a major operation and should not be performed on ambulatory patients.

Münchener medizinische Wochenschrift, Munich

75: 1663-1704 (Sept. 28) 1928

Prophylaxis of Goiter, Particularly with Iodized Salt. Trumpp.—p. 1663.
Agranulocytosis. W. Schultz.—p. 1667.
Spirometry in Examination of Athletes. O. Schmith.—p. 1669.
Effects of Gymnastics on School Children. E. Schlesinger.—p. 1672.
*Rhythmic Endonasal Hyperemia in Treatment of Ozena. M. Sauter. —p. 1675.
Endoscopic Pictures of Gastric Ulcer. R. Korbsch.—p. 1676.
*Spontaneous Gangrene of Extremities in the Young. M. Grasmann.—p. 1679.
Turpentine in Treatment of Skin Diseases and Gonorrheal Complications. N. Busch.—p. 1682.
Hallux Rigidus: Reply. J. Schüller.—p. 1683.
New Method of Injection Directly from Ampule. T. Baumgärtel.—p. 1683.

Rhythmic Endonasal Hyperemia in Treatment of Ozena.—Sauter uses a rubber inlay, fitting snugly in one nostril, in cases of ozena. With each inspiration through the other nostril, a negative pressure is produced in the occluded nostril. This periodically occurring negative pressure produces a rhythmic passive hyperemia of the entire nasal mucous membrane. Additional advantages are maintenance of warmth and moisture in the nasal cavity, rest of the part, and changed composition of the air in the closed nostril (almost entire absence of oxygen, increase of carbon dioxide and nitrogen). The inlay is used alternately in the two nostrils. He has used this treatment for only six months and has seen marked improvement in severe cases.

Spontaneous Gangrene of the Extremities in the Young.—The patient in Grasmann's case was a man, aged 34. There were definite evidences of constitutional disturbances in the endocrine system, of a vasoneurotic tendency and of hypoplasia of the arteries of the lower extremities. He had had syphilis, for which he had been thoroughly treated, with resultant negative Wassermann reaction for several years past. He had also had typhoid, and on two occasions, eighteen months and one month, respectively, before the onset of the attacks under consideration, he had had pains in the upper abdominal region which had raised the suspicion of gastric ulcer or aortalgia. Severe pains leading to collapse occurred suddenly in the left leg in October (beginning of cold weather). The entire left leg as far as the knee was perfectly white, cold and without sensation or pulse. The condition improved slowly under treatment, but recurred twice within sixteen days, the second time with gangrene of the toes which extended over the foot and part of the leg, necessitating amputation. The large vessels did not bleed; they were greatly contracted and without visible thrombosis. During convalescence the abdominal crises mentioned occurred several times, very suddenly and with severe shock. The following autumn the patient had several attacks of pain in the left hand, accompanied by loss of sensation and of pulse and by whiteness of the skin. The next year, again at the beginning of the cold weather, local syncope of the right leg occurred, rapidly followed by gangrene. The right leg was amputated. The caliber of the arteries was remarkably small and there was a stenosing process of the right popliteal artery. Five months later the patient died of pneumonia. Necropsy was not permitted. Since the arteries in the leg first amputated were macroscopically and microscopically intact, Grasmann assumes that the factors of greatest importance in the origin of the gangrene were functional.

Zeitschrift für klinische Medizin, Berlin

109: 1-226 (Sept. 13) 1928

Value of Roughage and Raw Food Diet. H. Salomon.—p. 1.
*Pathogenesis and Therapy of Dyspeptic Diarrhea. O. Porges and H. Essen.—p. 12.
Enteritis Without Colitis. O. Porges.—p. 28.
*Daily Blood Sugar Curve of Normal Persons and of Diabetic Patients. R. Seyderhelm and C. Oestreich.—p. 35.
Uses of Hunger Cures and Special Deficiency Diets. C. von Dapper-Saalfels.—p. 41.
Pancreas Ferment Injuries of Bile Ducts and Liver Through Dyskinesia of Excretory Ducts. K. Westphal.—p. 55.
Pituitary Extract in Duodenal Examination of Biliary Tract. H. Kalk. —p. 118.

Pathogenesis and Therapy of Dyspeptic Diarrhea.—Putrefactive dyspepsia is a form of typhlitis with prolonged putrefaction and simultaneous exaggerated peristalsis of the large intestine. It is caused by the overloading of the cecum following insufficient digestion in the stomach by excessive indulgence in raw foods, and by stagnation in the cecum from constipation. Fermentation dyspepsia is a milder form of typhlitis with exaggerated peristalsis of the large intestine and exaggerated defecation reflexes. In rare cases it is a form of ileotyphlitis. Its causes are like those of putrefactive dyspepsia. The authors describe a third form, "seifen" (soap) dyspepsia. It is characterized by the presence of soap and crystals of fatty acids in the feces. It is a catarrh of the small intestine. Its causes are similar to those mentioned, with the addition of gastro-entero-anastomosis. These phenomena can be explained by the catarrh and hypermotility of the portion of intestine attacked. All forms of dyspeptic diarrhea can be cured by diets which are outlined in the article.

Daily Blood Sugar Curve of Normal Persons and of Diabetic Patients.—A characteristic curve was found, based on the examination of the blood sugar of normal persons three times daily before meals. Usually the results of the noon examination were lower than those of the morning examination, which were over 100 mg. per hundred cubic centimeters. The results of the evening examination were seldom higher than those of the morning examination. In diabetic patients who had not yet received insulin the results of the later examinations were independent of those of the morning examination. Most of these cases could be treated without insulin. Those which showed a greater amount of sugar at noon usually proved to be more severe and required insulin.

Zeitschrift für Tuberkulose, Leipzig

51: 337-416 (Aug.) 1928

Differential Diagnosis of Encapsulated Pleurisy and Infiltrations of Edges of Lung Lobes in Pulmonary Tuberculosis. E. Brieger.—p. 337.
Roentgenograms of Weak Spots of Mediastinum in Unilateral Cirrhosis. W. Göbel.—p. 349.
*Immunization with Calmette's (B C G) Vaccine. H. Chiari, E. Nobel and A. Solé.—p. 354.
*Diagnosis and Treatment of Tuberculosis of Bronchial Lymph Nodes in Children. A. Kamsler.—p. 359.
*Assimilative Values of Butter and Cod Liver Oil in Cases of Tuberculosis of Mesenteric Lymph Nodes. I. Fertik and M. Pick.—p. 372.
*Silicic Acid Treatment of Tuberculosis of Bronchial Lymph Nodes in Children. W. Stein.—p. 377.

Immunization with Calmette's (B C G) Vaccine.—Intraperitoneal treatment of guinea-pigs with B C G bacilli did not protect them from subsequent infection, although in some instances life apparently was prolonged. Hence, the efficacy of immunization with B C G vaccine is very questionable.

Diagnosis and Treatment of Tuberculosis of the Bronchial Lymph Nodes in Children.—Diagnosis of this disease should include percussion, auscultation, roentgenography and determination of sedimentation speed of erythrocytes with relation to tuberculin. Treatment should be given in sanatoriums, with special schools and gymnastic exercises for such patients.

Assimilative Values of Butter and Cod Liver Oil in Tuberculosis of Mesenteric Lymph Nodes.—Children assimilate butter much more easily than cod liver oil. In tuberculosis of the mesenteric lymph nodes, however, the assimilation of fats is greatly decreased. Both butter and cod liver oil are not assimilated well. Butter is more valuable in the diet of children suffering from this disease as a nutrient; cod liver oil is valuable only because it contains vitamin A.

Silicic Acid Treatment of Tuberculosis of the Bronchial Lymph Nodes.—Three hundred and eighty-three children were treated for nine months with a hemoglobin-iron-malt extract containing 4 per cent iron albuminate, 10 per cent calcium and 2.5 per cent of silicic acid compounds. Great improvement followed, better appetite, and gain in weight. One third of the patients showed a significant increase of leukocytes, one third showed a small increase, and the rest did not show any change. The author emphasizes that this treatment is only an adjunct to heliotherapy, fresh air, cod liver oil and diet.

Zentralblatt für Gynäkologie, Leipzig

52: 2073-2136 (Aug. 18) 1928

Clinical Aspects and Genesis of Pseudo-Annular Placenta. E. Klaften.—p. 2074.
Treatment of Child Asphyxia During Labor. E. Spier.—p. 2082.
*Roentgen Diagnosis of Early Pregnancy. G. Albano.—p. 2084.
Tutocain as Spinal Anesthetic. E. von Konrád.—p. 2111.
Local Anesthesia in Gynecologic Laparotomies. Timofeew.—p. 2116.

New Technic for Roentgen Diagnosis of Early Pregnancy.—Albano found that roentgenograms of the uterus could be made during the first two months of pregnancy. He looked for a substance that would be impervious to roentgen rays, would not harm the mother, and would be retained in the placenta or eliminated in the amniotic fluid. He tried potassium iodide, strontium bromide and tetio-thalein sodium, each in doses of 1 Gm. Intravenous injections of the latter gave the quickest and best results. The shadows of pregnant uteri were sharply outlined; those of fibromatous uteri were less clear, with irregular edges.

Klinicheskaya Meditsina, Moscow

6: 1151-1230 (Sept.) 1928. Partial Index

Pathology of Epilepsy. V. K. Khoroshko.—p. 1151.
Etiology of Acute Rheumatism. V. T. Talalaev.—p. 1167.
Roentgen Examination of Sella Turcica. E. E. Abarbanel.—p. 1180.
*Results of Treatment of Epilepsy with Spinal Cord Emulsion. M. N. Stavrovskaya.—p. 1187.
*Hunger Sensation in Pathologic Conditions of Brain. M. S. Bousik and D. M. Mitntskiy.—p. 1196.
*Peptone Therapy of Migraine. S. M. Oxengendler.—p. 1204.
Effect of Exercise on Blood Sugar. A. P. Omelianz.—p. 1214.

Results of Treatment of Epilepsy with Spinal Cord Emulsion.—Stavrovskaya bases her conclusions on sixty cases of epilepsy treated with emulsion of the spinal cord: 1. In three years' observation, injections of emulsion were not accompanied by any undesirable complications. 2. The treatment should be individualized in relation to the quantity given and the intervals between the series of injections. 3. In some patients, sedatives should be prescribed between the courses. 4. Introduction of spinal cord emulsion has a favorable effect even in cases in which the attacks do not cease; the appetite and the psychic condition are improved, the working capacity increases, also the mental concentration and memory. 5. Disappearance of the attacks for three years was observed in twelve cases (20 per cent). 6. Disappearance for some period or amelioration of the gravity of the attacks was noted in 75 per cent of the cases. 7. Decrease in the number of attacks occurred in 86.7 per cent. 8. At the beginning of the treatment the attacks sometimes become more severe and frequent, but this fact should not discourage either the patient or the physician. 9. Daily subcutaneous injections are given of 1 cm. of spinal cord emulsion that has stood for twenty-four hours. Some patients received thirty injections followed by one month's rest, others sixty injections followed by two months' rest. The course of injections may be repeated from three to five times.

Hunger Sensation in Pathologic Conditions of Brain.—Bousik and Mitntskiy cite two cases of disturbed appetite in connection with diseases of the brain. They also review the literature and conclude: The presence of the "hunger" product in blood cannot be the sole cause of appetite disturbance. The cerebral cortex also plays a rôle in the regulation of hunger and the hunger sensation is observed in diseases of different parts of the cortex. In diseases of the medulla oblongata the hunger disturbances might occur when the splanchnic nucleus of the vagus or the connecting fibers with the midbrain are diseased. Acoria or bulimia observed in cerebral diseases are very often due to trauma.

Peptone Therapy in Migraine.—Witte's peptone was used by Oxengendler in eleven cases of migraine. In all the cases the attacks became less intense and the intervals longer. Since severe general and local reactions follow the introducing of large doses of peptone, the dosage should be regulated carefully. Intramuscular injections are advised.

Nederlandsch Tijdschrift v. Geneeskunde, Haarlem

72: 4367-4482 (Sept. 8) 1928

Delusions of Schizophrenia: II. G. Jelgersma.—p. 4368.
Treatment of Wounds, Burns, Infections of Nail and Furunculosis in General Practice. W. F. Suermondt.—p. 4377.
*Myasthenia Gravis. A. Querido.—p. 4387.
*Case of Neuroblastoma of Suprarenal with Metastases in Liver in Infant. S. M. C. van Veen.—p. 4393.
Postencephalitic Conditions. S. T. Heidema.—p. 4397.
*Influence of Liver and Spleen on Pernicious Anemia of Rats. A. Vedder.—p. 4411.
Absorbable Tampons. H. Feriz.—p. 4415.

Myasthenia Gravis.—Querido regards this disease as a chronic proliferating perivasculitis and not as a disease of the muscle in the narrower sense of the word. He reports a case, clinically typical of myasthenia gravis, in which similar changes were found in the transversely striated muscles, in the lung, liver and kidney. These changes consisted of perivascular collections of cells containing lymphocytes, leukocytes, mast cells, fibroblasts and mature connective tissue. There were also traces of extravasated blood, and the walls of the vessels which ran through these foci were infiltrated.

Neuroblastoma of the Suprarenal with Metastases in the Liver in an Infant.—A girl, born at term, was brought to van Veen at the age of 18 days. The mother stated that the abdomen had been large at birth and that since the twelfth day after birth it had steadily increased in size. A firm, smooth tumor, filling almost the entire right half of the abdomen, was palpated. Icterus was absent. During the three and one-half weeks that the child was under observation, the tumor increased in size. Shortly before death the abdomen was 48.2 cm. in circumference. The general condition, which was not greatly affected at first, became steadily worse and the child died at the age of 6 weeks. At necropsy the liver was pale, smooth and of great bulk. The primary tumor was found to proceed from the right suprarenal. Microscopic examination showed that the tumor of the suprarenal and that of the liver consisted of "sympathogonial" cells, mother cells of sympathoblasts and pheochromoblasts. These tumors of the suprarenal appear in two types: 1. Pepper's type, of which the case cited was typical. The children are usually less than 4 months old and liver metastasis may be present at birth. The tumor cells are very immature. The primary tumor is comparatively small, but the liver metastases are enormous; clinically they are usually mistaken for carcinoma or sarcoma of the liver. 2. Hutchinson's type, in which the patients are usually between 1 and 5 years old. The primary tumor is larger than in Pepper's type and may contain tumor cells of a more mature stage. Growth is slow. It metastasizes extensively in the flat bones, particularly in the skull. Exophthalmos or some other condition in the eye

is the symptom that brings the child to the physician. Twenty-seven certain cases have been reported in the literature.

Influence of Liver and Spleen on Pernicious Anemia of Rats.—Vedder found that liver extract in doses as large as 5 Gm. daily had no effect on the blood picture of rats with pernicious anemia caused by *Bartonella muris-rattis*, which followed splenectomy. The statement is made that the liver extract used was prepared according to the method of the American Committee on Pernicious Anemia. This speaks against Schilling's hypothesis that human pernicious anemia is caused by *Bartonella* infection. In another series of rats he implanted the whole or part of the extirpated spleen in the scrotum. The implant was regularly absorbed. These animals remained alive for a variable length of time; some are still living. Splenectomized rats in which the spleen was not reimplanted all died of *Bartonella* anemia within ten days.

72: 4483-4622 (Sept. 15) 1928

Curable Meningitis and Encephalitis. E. Gorter.—p. 4489.
*Primary Tumor of the Lung. M. W. Marsman.—p. 4498.
Conclusions from Percentages. A. B. D. Fortuyn.—p. 4509.
*Fluorescein Sodium in Diagnosis of Meningitis. J. C. Schippers and H. Peters.—p. 4514.
Ulcus Molle, Buboes, Inguinal Lymphogranuloma and Climatic Buboes. E. H. Hermans.—p. 4526.
Lipoma of Palm. T. S. Klots.—p. 4537.

Primary Tumor of the Lung.—Fifteen cases of primary lung tumor were seen by Marsman in the past two years. In only one was the patient a woman. A stubborn cough with bloody sputum and increasing weakness in a person over 40 who has previously been well should lead one to think of lung tumor. Loss of weight comes later. Shortness of breath occurs earlier than in tuberculosis. He cites a case in which the diagnosis was uncertain between lung tumor and echinococcus cyst. The reaction on intradermal injection of 0.5 cc. of echinococcus serum (Casonie's reaction) was positive for echinococcus. At operation, carcinoma was found. The blood picture is important in the differential diagnosis from lymphogranuloma and from lymphosarcoma of the mediastinum. Substernal goiter may give a roentgen picture suggesting lung tumor, but the substernal goiter moves upward on swallowing, and this can be observed on the fluoroscopic screen. In his cases he saw metastases in the brain, femur and pleura.

Flourescein Sodium in Diagnosis of Meningitis.—Schippers and Peters found that in meningitis flourescein sodium given by mouth (20 mg. per kilogram of body weight) passes into the spinal fluid in concentrations greater than 0.04×10^{-2}. Lesser concentrations they do not regard as pathologic. The presence of blood in the spinal fluid makes the reaction unreliable. The test is valuable, they believe, in the differential diagnosis of acute meningitis from other diseases of the central nervous system.

Hospitalstidende, Copenhagen

71: 887-914 (Aug. 23) 1928

Operative Treatment of Genital Prolapse with Special Regard to Interposition. P. Damm.—p. 887. C'cn.
*Unusual Phlebolith Formation in Veins of Lower Extremities. K. Winge.—p. 910.

Unusual Phlebolith Formation in Veins of Lower Extremities.—The peculiarity in Winge's case of multiple phlebectases was the unusual number and size of the phleboliths in spite of their occurrence in the leg, where phlebolith formation is uncommon. There were three ulcerations with three sequestrum-like bodies, and hard oblong bodies were felt elsewhere in the leg. The ulcerations remained resistant to treatment till six concretions up to half a pea in size had been ejected.

71: 963-990 (Sept. 6) 1928

*Surgical Diathermy in Malignant Tumors in Upper Air Passages. E. Schmiegelow.—p. 963. C'td.
Psychoses and Neurasthenias Connected with Gastric Achylia and Megalocytosis and Relation of Syndrome to Pernicious Anemia. E. J. Warburg and S. Jørgensen.—p. 974. C'td.

Application of Surgical Diathermy in Malignant Tumors in Upper Air Passages.—Of Schmiegelow's eight patients with malignant tumor of the upper jaw treated by this method to date, three have recovered, and he is convinced that electrothermic operation affords the best means for the removal of malignant neoformations in this region. He says the treatment requires a long time, possibly from two to three hours or longer. The operative shock is surprisingly slight. The entire hard palate and alveolar process must be removed for free access. In cancer in the nose and throat his excellent results with radium lead him to question whether electrocoagulation should replace radium treatment in these cases, but surgical diathermy seems to him justified in grave cases of otherwise inoperable fibroma of the nose and throat.

Hygiea, Stockholm

90: 737-768 (Sept. 30) 1928

*Case of Recurring Facial Paralysis with Angioneurotic Edema. E. Melkersson.—p. 737.

Case of Recurring Facial Paralysis with Angioneurotic Edema.—Melkersson reports an instance of unilateral peripheral facial paralysis in a man, aged 35, with history of three previous attacks lasting from two weeks to two months, the first occurring at the age of 3. Since the age of 14 there has been frequently recurring angioneurotic edema of the lips; during the last years it has been constant in the lower lip. He thinks the recurring paralysis may be due to vasomotor disturbances.

Norsk Magasin for Lægevidenskapen, Oslo

89: 933-1060 (Oct.) 1928

*Experiences with Thoracoplasty in Pulmonary Tuberculosis. M. H. Gjessing.—p. 933.
Erythema Nodosum. A. Wiborg.—p. 983.
*Case of Intestinal Lymphogranulomatosis. Ø. Hanneborg.—p. 997.
Methods in Vital Staining and Vitally Stainable Substance. J. W. Thrane.—p. 1004.
Blood Sedimentation Tests in the Mentally Diseased. R. Opsahl.—p. 1010.

Experiences with Thoracoplasty in Pulmonary Tuberculosis.—Gjessing reports 103 cases of extrapleural thoracoplasty done in one sitting, forty-five in men, fifty-eight in women, with an operative mortality of 8.7 per cent. The operative mortality was higher in men than in women, and in operations on the right side than in those on the left; it was particularly high in operations on the right side in men. The use of a general anesthetic did not cause noticeable increase in the mortality. There were relatively few complications. In most of the cases fatal after operation a flare-up of the tuberculosis occurred, as a rule within three years after treatment. Of the fifty-two patients observed for from three to seven and a half years, more than 50 per cent were permanently improved, and in almost 50 per cent the working ability was partially or completely restored. Phrenico-exeresis is valuable for immediate and permanent results. He questions the advisability of operation in exudative cases on the right side in men with slight dyspnea and cyanosis or other signs of heart weakness, but concludes that the results attained in advanced pulmonary tuberculosis, resistant to conservative treatment alone, call for the continued use of thoracoplasty in suitable cases.

Case of Malignant Intestinal Granulomatosis.—Hanneborg's case was that of a man, aged 49, who had had fever, marked eosinophilia, and intestinal hemorrhage. Necropsy revealed two ulcerated infiltrations in the jejunum and infiltrated mesenteric glands. The disease was apparently limited to the intestinal tract.

Ugeskrift for Læger, Copenhagen

90: 935-952 (Sept. 27) 1928

*Treatment of Fractures of Fingers. M. Fenger.—p. 935.

Treatment of Fractures of Fingers.—Fenger says that Zuppinger's method in transverse fractures of the fingers can be used by any practitioner and gives 100 per cent recovery, anatomically and functionally, in uncomplicated cases. Since the traction exerted in an elastic body stretched over a non-elastic body is in a straight line tangent to the arc, the fractured finger in its entire length is fixed by strips of adhesive tape to a straight strip of lead of the width of the finger, finger and lead splint are then bent from 45 to 50 degrees in every joint, beginning with the distal joint, and the fragments slide automatically into anatomically correct position. The lead strip is left in place for from six to eight days; from the tenth or twelfth day the finger is entirely free. Massage and careful exercise are begun after the eighth day. The efficiency of the finger is fully restored after from twenty-eight to thirty days.